PROPOSALS

For proposals Advertised see the pages immediately following the "Construction News" Section.

WATERWORKS

Bids Close			See Eng. News-Record
Jan.	3	Osakis, Minn.	Dec. 30
Jan.	10	Hartford, Conn.	Dec. 2
Jan.	10	Dayton, O.	Dec. 23
Jan.	17	Rush City, Minn.	Dec. 30
Feb.	8	North Branch, Minn.	Dec. 30
Feb.	15	Pine Island, Minn.	Dec. 30

SEWERS

Jan.	4	Detroit, Mich.	Dec. 30
Jan.	4	Emporia, Kan.	Dec. 30
Jan.	5	Lima, O.	Dec. 2
Jan.	5	Mansfield, O.	Dec. 16
Jan.	11	North Branch, Minn	Dec. 9
Feb.	8	North Branch, Minn.	Dec. 30

BRIDGES

Jan.	6	Miami, Fla. Adv. Dec. 2 to 30.	Dec. 2
Jan.	7	Jacksonville, Fla.	Dec. 2
Jan.	10	Ellsworth, Kan.	Dec. 23
Jan.	11	Burlington, Ont.	Dec. 23
Jan.	11	Houston, Va.	Dec. 30
Jan.	11	Hamilton, Ont.	Dec. 16
Jan.	17	Burlington, Ia.	Dec. 16
Jan.	20	Springfield, Mass. Adv. Dec. 2 to 30.	Dec. 30
Jan.	28	Missouri	Dec. 23
Feb.	7	Bainbridge, Ga	Nov. 25
Mar.	1	Ontario	Nov. 4

STREETS AND ROADS

Jan.	3	Washington	Dec. 30
Jan.	4	Michigan	Dec. 23
Jan.	4	Indiana	Dec. 23
Jan.	4	Portland, Ore.	Dec. 30
Jan.	4	San Luis Obispo, Cal.	Dec. 31
Jan.	5	Indiana	Dec. 23
Jan.	5	Colorado Springs, Col.	Oct. 21
Jan.	5	Austin, Minn.	Dec. 16
Jan.	6	Missouri	Dec. 9
Jan.	6	Concordia, Kan.	Dec. 16
Jan.	6	San Antonio, Tex.	Dec. 23
Jan.	6	Michigan	Dec. 23
Jan.	7	Michigan	Dec. 23
Jan.	7	Hutchinson, Kan.	Dec. 16
Jan.	7	Concordia, Kan.	Dec. 23
Jan.	10	Ontario	Dec. 23
Jan.	10	Stockton, Kan.	Nov. 18
Jan.	10	Louisiana	Dec. 30
Jan.	11	Emporia, Kan.	Dec. 16
Jan.	11	Rock Hill, S. C.	Dec. 23
Jan.	12	Florida	Dec. 23
Jan.	15	Nevada	Dec. 9
Jan.	17	Nashville, Tenn.	Dec. 30
Jan.	17	Tennessee	Dec. 30
Jan.	21	Missouri	Dec. 23
Jan.	24	Missouri	Dec. 30
Jan.	27	Missouri	Dec. 9
Jan.	28	Missouri	Dec. 23
Feb.	1	Pineville, W. Va.	Dec. 16
Mar.	1	Ontario	Dec. 2
Mar.	30	Westboro, Ont.	Nov. 11

EXCAVATION AND DREDGING

Jan.	4	Granite Falls, Minn.	Dec. 30
Jan.	5	New Madrid, Mo.	Dec. 30
Jan.	5	Rockwell City Ia.	Dec. 23
Jan.	7	Osage, Ia.	Dec. 23
Jan.	7	Bemidji, Minn.	Dec. 30
Jan.	7	Waseca Minn.	Dec. 30
Jan.	12	Muscatine, Ia. Adv. Dec. 30.	Dec. 30
Feb.	15	L'Original, Ont.	Dec 30

INDUSTRIAL WORKS

Bids Close			See Eng. News-Record
Jan.	3	Bartow, Fla.	Dec. 30
Mar.	1	La Salle, Ill.	Dec. 23

BUILDINGS

Jan.	3	Pittsburgh, Pa.	Dec. 30
Jan.	4	Greeley, Col.	Nov. 25
Jan.	4	Emporia, Kan.	Dec. 2
Jan.	4	Union Grove, Wis.	Dec. 2
Jan.	10	Cleveland, O.	Dec. 23
Jan.	10	Norfolk, Neb.	Dec. 30
Jan.	15	Fergus Falls, Minn.	Dec. 9
Jan.	15	Orange, Conn.	Dec. 23
Jan.	15	Evansville, Ind.	Dec. 23
Jan.	15	Iron Belt, Wis.	Dec. 9
Jan.	15	Prince Frederick, Md.	Dec. 9
Jan.	15	St. Louis, Mo.	Dec. 9
Jan.	15	Bedford, O.	Dec. 30
Jan.	17	Spooner, Wis.	Dec. 16
Jan.	18	Renville, Minn.	Dec. 30
Jan.	18	Harrold, S. D.	Dec. 30
Jan.	19	Buffalo, N. Y. Adv. Dec. 2 to 23.	Dec 2
Jan.	19	Buffalo, N. Y.	Dec. 9
Jan.	19	Buffalo, N. Y.	Dec. 30
Jan.	20	Lubbock, Tex.	Dec. 16
Jan.	28	Gilmanton, Wis.	Dec. 23
Jan.	24	McIntosh, S. D.	Dec. 30
Feb.	1	Albuquerque, N. M.	Dec. 30
Feb.	1	Channing, Mich.	Dec. 30
Feb.	8	Prospect, O.	Dec. 30
Feb.	8	Malta, Mont.	Dec. 30
Feb.	15	Springfield, O.	Dec. 30
Feb.	15	El Paso, Tex.	Dec. 2
Mar.	1	Duluth, Minn.	Dec. 2
Mar.	15	Pittsburg, Cal.	Dec. 23

FEDERAL GOVERNMENT WORK

Jan.	5	Concrete Roads, etc.—Spec. 4236—Wash., D. C.	Dec. 16
Jan.	5	Roofing—Spec. 4347—New York, N. Y.	Dec. 23
Jan.	5	Paving, Ducts, etc.—Spec. 4236—Wash., D. C.	Dec. 23
Jan.	5	Buildings and Improvement Spec. 4334—Quantico, Va.	Dec. 23
Jan.	5	Gallery—Knoxville, Pa.	Dec. 23
Jan.	5	Guard House, General Service Building, etc. — Spec. 4334—Quantico, Va.	Dec. 30
Jan.	5	Radio Building—Spec. 4351 —Astoria, Ore.	Dec. 30
Jan.	5	Crane Run For Steel Storage —Spec. 4251 — Brooklyn, N. Y.	Dec. 30
Jan.	6	Laundry—Stapleton, S. I., N. Y.	Dec. 23
Jan.	7	Repairing Roof — Wash., D. C.	Dec. 23
Jan.	7	Dredging—Norfolk, Va. Adv. Dec. 9 and 30	Dec. 9
Jan.	7	Fire Service Mains —New Orleans, La.	Dec. 16
Jan.	10	Remodeling Post Office Screen—Alliance, Neb.	Dec. 23
Jan.	10	Dredging—New Orleans, La. Adv. Dec. 9 to 30	Dec 9
Jan.	10	Mailing Vestibule, Extending Driveway, etc. — Grand Rapids, Mich	Dec. 30
Jan.	11	Remodeling Custom House and Court House—El Paso, Tex.	Dec. 30
Jan.	12	Electric Traveling Bridge Crane—Spec. 4326—Puget Sound, Wash.	Dec. 16
Jan.	12	Quarters — Spec. 4344 — Tybee Island, Ga.	Dec. 30
Jan.	17	Dredging—New York, N. Y. Adv. Dec. 16 to 30.	Dec. 16
Jan.	17	Return Flue Boilers—St. Louis, Mo. Adv. Dec. 23 and 30	Dec. 30
Jan.	18	Stern Wheel — Memphis, Tenn. Adv. Dec. 23 and 30.	Dec. 30
Jan.	20	Dredging—Galveston, Tex. Adv. Dec. 23 and 30	Dec. 30
Jan.	20	Constructing Steel Hull — Cincinnati, O. Adv. Dec. 30.	Dec. 30
Jan.	27	Post Office—Santa Fe, N. M.	Dec. 30
Mar.	15	Post Office—Joplin, Mo.	Dec. 9

MISCELLANEOUS

Jan.	4	Wall—Seneca Falls, N. Y. Adv. Dec. 9 to 30.	Dec. 9
Jan.	4	Transmission Line—Prescott, Ia.	Dec. 30
Jan.	4	Crib—Trenton, N. J. Adv. Dec. 30.	Dec. 30
Jan.	5	Fan, Motor, Heaters, etc.—Dannemora, N. Y.	Dec. 16
Jan.	5	Fender Rack and Ice Breakers — Perth Amboy, N. J.	Dec. 16
Jan.	6	Asphalt Wearing Surface Sand, etc. — New York, N. Y.	Dec. 30
Jan.	6	Clay, Cement and Broken Stone, etc. — New York, N. Y.	Dec. 30
Jan.	6	Plumbing and Draining — Brooklyn, N. Y.	Dec. 30
Jan.	7	Cast Iron Pipe, Valves, etc. —Douglas, Wyo.	Dec. 30
Jan.	7	Plumbing and Draining — New York, N. Y.	Dec. 30
Jan.	7	Wharf—Summerville, N. S.	Dec. 23
Jan.	10	Filter Sand — Hartford, Conn.	Dec. 2
Jan.	10	Culverts—Ontario	Dec. 30
Jan.	11	Motors and Pumps—Sacramento, Cal.	Dec. 2
Jan	12	Laundry Equipment, Binghamton, N. Y. Adv. Dec. 30.	Dec. 30
Jan.	18	Engine and Pump—Okeechobee, Fla. Adv. Dec. 16 to 30.	Dec. 16
Jan.	26	Wall—Chesterville, Ont	Nov. 25

Where name of official is not given inquiries should be addressed to City Clerk, County Clerk or corresponding official.

Waterworks

PROPOSED WORK

N. J., Avon—City plans to build pumping plant. About $60,000. J. Thomson, comr.

S. C., Seneca—City voted $160,000 bonds to build waterworks and sewerage systems. W. F. Austin, chn. Comm. Pub. Wks. Noted Dec. 9.

Wis., Manitowoc—City passed ordinance to install water mains in Hamilton, Buffalo and Columbus Sts. Cost between $18,000 and $20,000. A. H. Zander, city engr.

Mont., Helena—City plans to lay 7 mi. water mains. About $200,000. A. W. Verharen, city engr.

Cal., Rafael—Marion Co. Municipal Water Dist. voted $500,000 bonds to finance following improvements: Reservoir near Phoenix Lake, cost $20,000; pipe line from state highway to Mill Valley, $20,000; pipe line from Alto to Belvedere and Tiburon, $127,500; new reservoir from Laguna Creek to Cascade intake, $14,000; pipe renewals

Waterworks (Continued)

and extensions in San Rafael, $52,000; San Anselmo and Ross, $39,500; Mill Valley, $37,000; Corte Madera, $7,500; Larkspur, $5,500; San Quentin, $3,000; outside incorporated towns, $25,000.

Que., Levis—Town soon receives bids building waterworks system. About $177,000.

BIDS DESIRED

Minn., North Branch—Until Feb. 8, by A. Nordstrom, city clk, building waterworks system, including deep well pump and tower tank. About $40,000. Druar & Milinowski, 512 Globe Bldg., St. Paul, engrs.

Minn., Osakis—Until Jan. 3, by C. G. Millard, village recdr., building and equipping pumping station. About $10,000. C. L. Pillsbury Co., 1206 2nd Ave. S., Minneapolis, engrs. Noted Oct. 28.

Minn., Pine Island—Until Feb. 15, by H. H. Billings, city clk., extending water mains. Alternate bids will also be received on steel or concrete reservoir. About $30,000. Noted Oct. 7.

Minn., Rush City—Until Jan. 17, by J. F. Sommers, city clk., building 4 wells and suction mains, involving 135 ft. 6 in. c.i. suction pipes, 1,000 lb. c.i. T crosses. Druar & Milinowski, 512 Globe Bldg., St. Paul, engrs. Noted Dec. 2.

PRICES AND CONTRACTS AWARDED

(★Indicates award of contract)

★**Ia., Mason City**—City will build new reservoir and wells and deepening present wells. About $300,000. Work will be done by day labor. Noted Nov. 18.

★**Cal., Hemet**—Memet Water Co. let contract lining two 100 x 250 ft. tunnels with concrete, and building 2 rein.-con. pipe syphons, one 435 ft. 39 in. long, other 1,050 ft. 42 in. long, to Bent Bros., Central Bldg., Los Angeles. About $20,000.

Sewers

PROPOSED WORK

N. C., Belhaven—City will sell $60,000 bonds, Jan. 20th, to build sewers. D. S. Smith, clk.

S. C., Seneca—See "Waterworks."

Ill., Benton—City passed ordinance to build sewers, manholes, etc., throughout entire city, involving 110,156 ft. 6-30 in. vitr. pipe, 86,705 cu.yd. earth and 1,650 cu.yd. rock trencing, 248 brick manholes. About $248,671. C. B., Mautz, Benton, engr.

Wis., Kimberly—Village having plans prepared for new sewerage system, sewage disposal plant and septic tanks. About $100,000. F. A. C. Smith, Colby-Abbott Bldg., Milwaukee, engr.

Ia., Centerville—City authorized $28,000 bonds to build sewers in various streets. Engineer not announced.

S. D., Elk Point—City having plans prepared for sewerage system, involving 23,800 ft. sewer tile, 5,800 ft. outlet tile pipe and sewage pumping plant. About $35,000. T. H. Johnson, 319 Iowa Bldg., Sioux City, engr.

Tex., Austin—City defeated $55,000 bond issue to build sewerage system. New election will be held soon. C. E. Leonard, city engr. Noted Nov. 18.

Cal., Palo Alto—See "Streets and Roads."

Cal., Visalia—City voted $100,000 bonds to extend sewers.

Ont., Ingersoll—City plans to build sewerage system. About $100,000.

Ont., Walkerton—City having plans prepared for building storm sewers in Victoria, Jackson and Colborne Sts. About $45,000. Address A. MacNab, mayor.

BIDS DESIRED

Mich., Detroit—Until Jan. 4, by Dept. Pub. Wks., building 9,982 ft. of 14 ft. sewer in Dailey and Hatfield Aves., Joy Rd., Lawton and Atkinson Aves. from Livernois to Linwood Aves., also 6,400 ft. of 10½ ft. sewer in Six Mile Rd. from Sta. 60 x 100 to Connors Creek, brick, concrete block, monolithic concrete or combination of same. C. W. Hubbell, City Hall, engr.

Minn., North Branch—Until Feb. 8, by A. Nordstrom, city clk., building 25,000 ft. 8-12 in. vitr. sewers in various streets. About $30,000. Druar & Milinowski, 512 Globe Bldg., St. Paul, engrs.

Kan., Emporia—Until Jan. 4, by city, building 3 mi. 8-15 in. vitr. pipe in southwest section of city, involving 15,846 lin.ft. earth trenching, manholes, etc. A. J. Smith, Emporia, engr.

PRICES AND CONTRACTS AWARDED

(★Indicates award of contract)

★**N. Y., Ossining**—C. F. Rattigan, supt. State Prisons, Capitol, Albany, let contract building sewerage and water supply systems, here, to Carroll Contg. Co., Inc., 103 Park Ave., New York City, $313,392. Noted Dec. 16.

★**N. Y., S. I., St. George**—C. D. Van Name, pres. Richmond Boro., let contract building temporary sanitary outlet sewer in Cromwell Ave., etc., to Richfield Constr. Co., 280 Madison Ave., New York City, $51,968. Noted Dec. 9.

★**Wis., Elkhorn**—City let contract excavating and laying .9 mi. 8-10 in. vitr. sewers, etc., in Wisconsin St., to F. P. Cayli, Main St., Waukesha. About $20,000.

★**Wis., Ft. Atkinson**—City let contract excavating and laying 8,700 ft. 8-10 in. vitr. pipe sewer and building necessary manholes in Main St., to G. W. Leisman, 313 Grant St. About $25,000.

★**Minn., Little Falls**—City will build trunk sewers in Dist. 2, involving 5,250 ft. 15-20 in. pipe, 13 manholes, 330 ft. 8 in. vitr. pipe connections, etc. Work will be done by day labor. Former bids rejected. Noted Nov. 18.

★**Tex., Austin**—City let contract building storm sewers in 4th, 5th, 6th, 7th, 10th, Travis, Austin, Indiana and Ohio Sts., involving 8,450 ft. segmental and 9,327 ft. tile block pipe, to C. H. Foley, 1639 Elizabeth St., Wichita Falls, $200,885.

Cal., Los Angeles—City received bids Dec. 13th building disposal plant and outfall sewer in Fish Harbor, San Pedro, involving 2,700 ft. vitr. pipe, from R. D. Wood, Los Angeles, 261 tons class "B" pipe, $86.50, 13 tons class "D," $86, 3.54 tons class "D" special pipe, $172, 460 tons class "D" Metropolitan type "A," $127 per ton; Amer. Cast Iron Pipe Co., Natl. Bank Bldg., $22,495; U. S. Cast Iron Pipe Co., 215 West 7th St., $23,500.

Bridges

PROPOSED WORK

Mass., Allston (Boston P. O.)—City of Boston having sketches made for 140 ft. concrete and steel bridge, 90 ft. wide on Cambridge St. About $175,000.

Mass., Boston—State Bridge Comn. rejected bids and will receive new bids in spring building 730 ft. rein.-con. and steel bridge between Newponset Ave. here and Hancock St., Quincy. About $600,000. J. R. Rablin, 8 Tremont St., engr.

Ia., Rockdale (Dubuque P. O.)—Dubuque Co. plans to build 600 ft. concrete viaduct over Rockdale-Illinois Central R.R. tracks. About $150,000. G. A. Blunt, co. engr.

Missouri—State Highway Dept., Greenville, received no bids Dec. 17, building rein.-con. skew slab superstructure and 1 mass concrete pier, over Stevens Branch, on Sta. 11 plus 51, cost $4,632; I-beam superstructure, on Sta. 652 plus 50, involving 9.3 cu.yd. Class B and 45.7 cu.yd. Class C concrete, 2,560 lb. reinforcing and 5,216 lb. fabricated structural steel, $2,526; pony truss superstructure, over Clarks Creek, on Sta. 485 plus 35, 56.7 cu.yd. Class A and 130.9 cu.yd. Class B concrete, 19,350 lb. reinforcing and 52,400 lb. fabricated structural steel, $15,365; rein.-con. slab superstructure and 2 mass concrete piers over Clarks Creek, on Sta. 208 plus 37.5, $8,080; beam span approach to main span and 5 concrete pile bents, over St. Francois River, on Sta. 645 plus 55.5, $8,019. All above on Federal Aid Project 129, Wayne Co. Noted Oct. 7.

Missouri—State Highway Dept., Jefferson City, plans to build rein.-con. skew slab superstructure on Sta. 824 plus 40, involving 1.8 cu.yd. Class A and 57.6 cu.yd. Class B concrete, 4,350 lb. reinforcing steel; rein.-con. skew through girder superstructure and 3 mass concrete piers, over Hog Creek, on Sta. 1237 plus 00, 309 cu.yd. Class B and 101 cu.yd. Class C concrete, 39,970 lb. reinforcing steel; rein.-con. slab superstructure and 1 mass concrete pier, over West Branch Piney Creek, on Sta. 368 plus 75, 3.3 cu.yd. Class A, 38.5 cu.yd. Class B and 34.8 cu.yd. Class C concrete, 4,300 lb. reinforcing steel; rein.-con. slab superstructure and 1 mass concrete pier, over Indian Creek, on Sta. 1339 plus 00, 3.9 cu.yd. Class A, 87.3 cu.yd. Class B and 24 cu.yd. Class C concrete, 7,980 lb. reinforcing steel; rein.-con. slab superstructure and 1 mass concrete pier, over Piney Creek, on Sta. 458 plus 85, 3.9 cu.yd. Class A, 95.4 cu.yd. Class B and 11.9 cu.yd. Class C concrete, 7,630 lb. reinforcing steel; rein.-con. skew slab superstructure and 1 mass concrete pier, on Sta. 330 plus 4[illegible] cu.yd. Class A, 77 cu.yd. Class B and [illegible] cu.yd. Class C concrete, 5,510 lb. reinfor[illegible] steel; rein.-con. slab superstructure a[illegible] mass concrete piers, over Piney Creek, Sta. 615 plus 00, 5.7 cu.yd. Class A, [illegible] cu.yd. Class B and 29.3 cu.yd. Cla[illegible] concrete, 11,050 lb. reinforcing steel; r[illegible] con. slab superstructure and 2 mass [illegible] crete abutments, on Sta. 525 plus 30, [illegible] cu.yd. Class A, 20.5 cu.yd. Class B [illegible] 58.4 cu.yd. Class C concrete, 2,480 lb. r[illegible] forcing steel; rein.-con. slab superstruc[illegible] on Sta. 1053 plus 75, 2.1 cu.yd. Class [illegible] and 93.4 cu.yd. Class B concrete, 7,200 [illegible] reinforcing steel; rein.-con. skew through girder superstructure and 3 rein.-con. pier[illegible] over Piney Creek, on Sta. 885 plus [illegible] 333 cu.yd. Class B and 137 cu.yd. Class [illegible] concrete, 45,800 lb. reinforcing steel; rein[illegible] con. slab superstructure on Sta. 616 plus [illegible] 30, 2.1 cu.yd. Class A and 64.6 cu.yd. Class B concrete, 5,530 lb. reinforcing steel; rein[illegible] con. skew slab superstructure, on St[illegible] 1225 plus 25, 1.5 cu.yd. Class A, 13.4 cu.y[illegible] Class B and 27.5 cu.yd. Class C concrete, 1,790 lb. reinforcing steel; rein.-con. slab superstructure and 2 mass concrete piers over Potters Creek, on Sta. 634 plus 00, 6.7 cu.yd. Class A, 157.9 cu.yd. Class B and 43.3 cu.yd. Class C concrete, 15,090 lb. reinforcing steel; rein.-con. slab superstructure and 2 mass concrete piers, over Berry Branch, on Sta. 773 plus 80, 5.7 cu.yd. Class A, 78.2 cu.yd. Class B and 50.1 cu.yd. Class C concrete, 9,260 lb. reinforcing steel. All above bridges on St. Louis-Springfield Rd., Federal Aid Project 90, Texas Co.

Tex., Austin—City defeated $25,000 bond issue to build bridges. New election will be held soon. C. E. Leonard, city engr. Noted Nov. 18.

Cal., Visalia—City voted $10,000 bonds to build concrete bridges.

BIDS DESIRED

Mass., Neponset (Boston P. O.)—Until Jan. 19, by Commonwealth of Massachusetts, Metropolitan Dist. Comn., 118 Tremont St., Boston, building 700 ft. bridge over Neponset River, involving 9,660 cu.yd. concrete, 1,600 cu.yd. stone masonry, 110,000 lin.ft. wood piling, 1,460 sq.yd. granite-block paving, 35,000 ft. lumber, 410 tons stone and gravel ballast, 11,500 cu.yd. dredging, 8,000 cu.yd. earth approach and fill. Work will also include removal present bridge. Noted May 13.

Mass., Springfield—Until Jan. 20, by Bd. City Suprvs., Administration Bldg., furnishing, fabricating, erecting and painting the structural steel and fences for Indian Orchard Bridge, over Chicopee River between here and town of Ludlow, Hampden Co.; advertised in this issue.

Va., Houston—Until Jan. 11, by State Highway Comn., Richmond, building 540 ft. bridge over Bannister River, here.

Tennessee—See "Streets and Roads."

PRICES AND CONTRACTS AWARDED

(★Indicates award of contract)

N. H., Portsmouth—Piscataqua River Bridge Comn., City Hall, received bids Dec. 14 building superstructure for bridge over Piscataqua River between here and Kittery, Me., from Amer. Bridge Co., 120 Franklin St., Boston, $619,000; Bethlehem Steel Bridge Corp., 141 Milk St., Boston, $634,700. Noted Dec. 2.

Fla., White Springs—State Highway Dept., Tallahassee, received bid building steel truss, 228 ft. center to center pins on rein.-con. abutments, with 20 ft. clear roadway, from Pensacola Shipbuilding Co., Blount Bldg., Pensacola. About $57,100. Noted Nov. 18.

★**Mich., Detroit**—Wayne Co. Rd. Comrs., 312 Co. Bldg., let contract sinking pneumatic caissons through earth to rock a distance approxmiately 80 ft., furnishing all labor and material except cement for 4 caissons and substructure for double leaf bascule type bridge (substructure and foundations only included in this job), to Missouri Valley Bridge & Iron Co., Kansas City, Mo., $358,280. Noted Dec. 9.

Wis., Racine—City received bids Dec. 18, building 343 ft. steel and concrete double leaf bascule bridge, on State St., from Greiling Bros., 100 Blk. East Walnut St., Green Bay, $339,000; E. E. Gillen Co., 120 Wisconsin St., Milwaukee; A. Green Constr. Co., 154 North Pearl St., Green Bay, $381,500. Ketler-Elliott Co., 3153 South California Ave., Chicago, bid on superstructure only, $254,155. Noted Dec. 2.

★**Minn., St. Paul**—City let contract building concrete bridge on Cherokee Heights Blvd., to McManis & Tarnowski, 484 Endicott Bldg., $15,998. Noted Dec. 9.

Bridges (Continued)

Kan., Columbus — Cherokee Co., received bids building one 150 ft. rein.-con. arch bridge; also three 50 ft. girder spans, (alternate design), on Federal Aid Project 71, both designs for 18 ft. roadway, from Koss Constr. Co., 2818 5th St., Des Moines, (girder plan) $40,576, (arch plan), $45,381. Noted Nov. 18.

★**Tex., Ft. Worth**—Tarrant Co. let contract building bridge, to have 2 steel spans on concrete piers and abutments, over Trinity River on White Settlement Rd., also over Trinity River on Lake Worth Dam Rd., to Austin Bros. Bridge Co., 1815 Coombs St., Dallas, $42,700 each. Noted Nov. 11 and Dec. 2.

Tex., Nacogdoches—Nacogdoches Co. received bids Dec. 13, building (1) steel span bridges with wooden flooring on concrete piers on Highway 35, Garrison Rd., involving 821 cu.yd. Class "A" concrete, 425 cu. yd. wet and 425 cu.yd. dry structural excav., 18,400 ft. untreated lumber, 248,120 lb. structural and 36,123 lb. reinforcing steel, etc., (2) bridges on Highway 21, Cherino Rd., 1,188 cu.yd. Class "A" concrete, 482 cu.yd. wet and 482 cu.yd. dry structural excav., 25,510 ft. flooring, 344,740 lb. structural and 59,041 lb. reinforcing steel, etc., (3) bridges on State Highway 4, Douglas Rd., 577 cu.yd. wet and 577 cu.yd. dry excav., 23,410 ft. untreated timber, 1,200 cu.yd. Class "A" concrete, 375,644 lb. structural and 68,808 lb. reinforcing steel, etc., from Highway Iron Products Co., Legionere, Ind., represented by W. B. Hill and C. V. Joseph, (1) $56,385, (2) $85,479, (3) $89,605; Austin Bros. Bridge Co., 1815 Coombs St., Dallas, represented by J. R. Moore and J. B. Templeton, (1) $58,632, (2) $82,339, (3) $87,605; Illinois Steel Bridge Co., Jacksonville, Ill., represented by F. T. Hughes and H. K. Wells, (1) $60,545, (2) $85,419, (3) $90,270. Noted Dec. 9.

Tex., Orange—Orange Co. received bids building 700 ft. steel span bridge, on concrete piers, 16 ft. roadway, over Cow Bayou, on Highway 3, from Houston Constr. Co., 2300 McKinney St., Houston, $84,400; Sherman Constr. Co., Mexia, $91,000. Noted Nov. 18.

Streets and Roads

PROPOSED WORK

Mass., West Roxbury (Boston P. O.)—City plans to grade and drain 2 acres Mt. Hope Cemetery; work also includes excavating entire lot to dept of 6 ft. About $25,000. J. J. Murphy, 33 Beacon St., Boston, engr.

N. J., Toms River—Bd. Freeholders Ocean Co. plan to pave 1 mi. Washington St., concrete. J. M. Abbott, Toms River, engr.

Va., Roanoke—City receives bids in January paving various streets with vitr. brick. About $300,000. A. W. Morris, city engr.

N. C., Goldsboro—City will sell $227,000 bonds Jan. 3 to improve streets. J. G. Tyson, clk.

N. C., Raleigh — City plans election to vote on $100,000 bonds to curb and gutter various streets. J. B. Bray, comr. Pub. Wks.

N. C., Winston-Salem — Comrs. Forsyth Co. plan election in January to vote on $2,000,000 bonds to hard surface roads.

O., Columbus—City plans to grade, curb, lay water mains and pave 295 ft. Broad St. from Anson to Sandusky Sts., 55 ft. wide, asphalt; 1,340 ft. Main St. from Allen Ave. to Alum Creek, 55 ft. wide, asphalt; 3,555 ft. High St. from Cedar Alley to 5th Ave., 55 ft. wide, probably asphalt; 4,300 ft. Front St. from Town St. to Viaduct, 40 ft. wide. R. H. Simpson, City Hall, engr.

Wis., Alma—Buffalo Co. plans to grade, surface and drain various roads. About $53,656. J. Reinhart, Nelson, comr.

Wis., Chippewa Falls — Chippewa Co. plans to gravel surface roads. About $64,557. P. O. Lokrantz, comr.

Wis., Jefferson—Jefferson Co. plans to grade and gravel surface various roads and build Portland Bridge in village of Waterloo. About $44,851. R. D. Royce, Ft. Atkinson, comr.

Wis., Oshkosh—City plans to pave South Main St. from 9th St. to South Park Ave.; Nebraska St. from Fox River to 6th St.; Ohio St. from South Park Ave. to 17th St.; 17th St. from railroad tracks to Ohio St.; South Park Ave. from railroad tracks to Ohio St.; Minnesota St. from Fox River to 6th St.; West Algoma St. from Algoma to Pearl Sts.; Frederick Ave. from Irving to Scott Sts.; Grant St. from Algoma to Vinland Sts.; Otter St. from Bowen to Rosalia Sts.; Liberty St. from New York Ave. to Grant St.; Monroe Ave. from Washington to Park Sts.; Marion St. from Jackson to Wisconsin Sts.; Reed St. from Elm to Spruce Sts.; Congress St. from Algoma to Elm Sts.; Grant St. from Vinland to Oakland Sts.; Jefferson Ave. from Irving St. to New York Ave. About $25,000. Bids will be received on concrete, brick, and other types of pavement. G. Randall, city engr.

Wis., Sparta—Monroe Co. plans to grade, gravel surface and build culverts on various roads. About $27,111. C. E. Millard, comr.

Wis., Stevens Point—Portage Co. plans to grade and gravel surface various roads. About $32,118. T. E. Cauley, comr.

Wis., Waupaca—Waupaca Co. plans to grade and gravel surface various roads. About $25,465. J. Huffcut, comr.

Ia., Anamosa—City plans to pave and resurface 50 blocks. About $100,000.

Ia., Lamont—City rejected bids received Dec. 15, paving 25 blocks, rein.-con., asphaltic concrete, bitulithic or brick. Project indefinitely postponed. Shockley Eng. Co., 801 Graphic Arts Bldg., Kansas City, Co., engrs. Noted Oct. 28.

Minn., Duluth—City receives bids about March 1, building 5 mi. Congdon Blvd., concrete. About $400,000. E. Coe, city engr.

Minn., Red Lake Falls—Red Lake Co. plans to build 9 mi. state roads. About $30,000. H. E. Palmer, Red Lake Falls, engr.

S. D., Sturgis—City plans to pave 6 blocks, 30 ft. wide. About $24,000.

Missouri—State Highway Dept., Greenville, received no bids Dec. 17, building 14.38 mi. Sect. A, Piedmont-Marble Hill Rd., Federal Aid Project 129, Wayne Co., involving 93,396 cu.yd. earth and 8,382 cu. yd. rock excav., 8,924 cu.yd. borrow, 57,930 cu.yd. per 100 ft. overhaul, 100,700 sq.yd. specification C gravel pavement, 653.2 cu.yd. Class B and 152.6 cu.yd. Class C concrete masonry, 31,741 lb. reinforcement for concrete masonry, etc. About $146,072.

Mo., Mexico—Audrian Co., c/o S. C. Groves, judge, plans to gravel 3.8 mi. North State Highway. About $57,000. Engineer not selected.

Tex., Austin—City defeated $50,000 bond issue to pave various streets. New election will be held soon. C. E. Leonard, city engr. Noted Nov. 18.

Tex., Eastland — Eastland Co. having plans prepared paving 10 mi. Eastland-Ranger Rd., State Highway 1, involving 105,661 sq.yd. 2 in. bitulithic. About $261,500. W. R. Eccles, co. engr.

Tex., Franklin—Robertson Co. plans election to vote on $35,000 bonds to complete Kings Trail Highway from Bremond Precinct line on north to Brazos Co. line on south, running through here and Wheelock. L. Acker, Nacogdoches, engr.

Tex., Sierra Blanca—Hudspeth Co. having surveys made gravel surfacing and draining 73 mi. State Highway 1, from El Paso Co. line to Culberson Co. line, 16 ft. wide. About $200,000. H. Schroetter, co. engr.

Okla., Okmulgee—City soon receives bids resurfacing practically all streets in business district and laying 73 blocks of pavement in residential districts, brick and asphalt. About $1,000,000.

Cal., Palo Alto—City receives bids about Mar. 1, grading, paving and laying storm sewers in 2.8 mi. Forest Ave., Alma, Emerson, Cowper and Middlefield Sts., involving 59,680 sq.yd. 5 in. concrete, 6,220 lin.ft. curbing, 6,000 sq.ft. sidewalks, 10,250 cu.yd. excav., 36 catch basins, 20 manholes, 6,000 ft. 10-18 in. vitr. pipe. About $134,210. J. F. Byxbee, Jr., Palo Alto, engr.

Ont., London—Middlesex Co. having plans prepared and soon receives bids building 3 mi. Pipe Line Rd., concrete. About $80,000. C. Talbot, County Bldg., engr.

Ont., Walkerton—Town receives bids in March building concrete pavements on Main St. About $59,000. Address A. NacNab, mayor.

BIDS DESIRED

Louisianna—Until Jan. 10, by Bd. State Highway Engrs., Maison Blanche Annex, New Orleans, bulding .95 mi. Baton Rouge-New Orleans Highway, Sect. B, Ascension Parish, and 4.6 mi. New Iberia-Burke Highway Iberia Parish. D. Bule, state highway engr.

Tennessee—Until Jan. 17, by State Highway Dept., Nashville, building 12.76 mi., State Highway between Sta. 130 near Bearden and London Co. line, being Sect. B Federal Aid Project 41, Knox Co., involving 36,752 cu.yd. common excav., 2,123 cu.yd. solid rock excav., 8,015 cu.yd. borrow excav., 90,000 sq.yd. reconstructed base course, 44,760 sq.yd. modified Telford base course, 90,000 sq.yd. broken stone base course "C," 134,760 sq.yd. bituminous macadam surface course, 2 cu.yd. special concrete, 287 cu.yd. Class "A" concrete and 27 cu.yd. Class "B" concrete; concrete bridges over 20 ft. span, involving 14 cu.yd. special concrete, 109.88 cu.yd. Class "A" concrete and 267.71 cu.yd. Class "B" concrete, etc.

Tennessee—Until Jan. 17, by State Highway Comm., Nashville, building 15.28 mi. State Highway 32, between Fayetteville and Bedford Co. line, Lincoln Co., involving 70,414 cu.yd. common excav., 29,177 cu.yd. solid rock excav., 33,519 cu.yd. borrow excav., 144,604 sq.yd. bituminous macadam, 13.08 cu.yd. special concrete, 545.1 cu.yd. Class "A" concrete, 327.68 cu.yd. Class "B" concrete, etc. W. P. Moore, state highway engr.

Missouri—Until Jan. 24, by State Highway Dept., Linneus, building 1.95 mi. state road east and west of Brookfield, State Aid Project S 20.24, Linn Co., involving 29,218 cu.yd. earth excav., 48,863 cu.yd. borrow, 16.7 cu.yd. Class B and 3.4 cu.yd. Class C concrete masonry, 1,175 lb. reinforcement for concrete masonry, etc. About $32,161.

Washington—Until Jan. 3, by State Highway Comm., Olympia, grading 7.1 mi. Pacific Highway, near Mud Bay, Thurston Co. J. Allen, Olympia, state highway engr.

Oregon—Until Jan. 4, by State Highway Comm., Room 520 Multnomah Co. Court House, Portland, grading 9.2 mi. road unit 1, Felson-Huntington Sect., Old Oregon Trail, Baker Co., involving 161,000 cu.yd. excav.; paving 8.6 mi. Junction City-Monroe Sect. West Side Highway, Benton and Lane Counties; Portorford-Hubbard Creek Sect., Curry Co., 25,000 cu.yd. excav.; 6.2 mi. Roseburg-Dillard Sect. Pacific Highway, Douglas Co.; 5,700 ft. wood guard fence on Arlington Morrow Co. Line Sect. Columbia River Highway, Gilliam Co.; 6.3 mi. Walker Divide Sect. Lane Co., surfacing 25.3 mi. Lexington Gilliam Co. Line Sect., Oregon-Washington Highway, Morrow Co., 28,500 cu.yd. rock surface; 12.5 mi. gravel or rock surfacing on Seufert-Deschutes River Sect. Columbia River Highway, Wasco Co., 31,000 cu.yd. excav.

Cal., San Luis Obispo—Until Jan. 4, by Bd. Supervs. San Luis Obispo Co., paving 22 mi. Sect. B and C, Rd. 3, and Santa Rosa and Sycamore Sts., 5 in. concrete. W. B. Burch, San Luis Obispo, engr.

PRICES AND CONTRACTS AWARDED

(★Indicates award of contract)

★**Alabama**—State Highway Comm., Montgomery, let contract grading and installing drainage structures on 18.2 mi. Federal Aid Project 88, 24 ft. wide, Marshall Co., to W. T. Taylor Constr. Co., Wilsonville, $126,814.

★**Louisiana**—State Highway Dept., New Orleans let contracts building 5.21 mi. Tallulah-St. Joseph Highway, Sect. A, Madison Parish, to S. K. Jones, 1252 Herbert Ave., Memphis, Tenn., $34,968; 2.11 mi. Rayville-Monroe Highway, Sect. A-1, Richland Parish, to J. M. Bass & Co., Hazelhurst, Miss., $18,558; 13.26 mi. Rayville-Winnsboro Highway, Sect. C, Richland Parish, to A. E. Perry, Colfax, $158,471; 17.37 mi. Arcadia-Shreveport and Arcadia-Ruston Highways, Bienville Parish, to W. H. Smith, Alexandria, $331,903. Noted Dec. 9.

★**Ill., Glencoe**—Village let contract paving 6,300 sq.yd. Skokie Rd., concrete, to M. Foley & Co., Evanston. About $28,000.

★**Kan., Columbus**—Cherokee Co. let contract paving 2.95 mi. Joplin and Galena Rds., Federal Aid Project 71, Sect. A, 18 ft. wide, concrete, to Koss Constr. Co., 2818 5th St., Des Moines, Ia., $138,580. Noted Nov. 11.

★**Missouri**—State Highway Dept., California, let contract to E. C. Johnson, Jefferson City, building various sections of Southern Highway, State Aid Project S 20.14, Manitou Co., .98 mi. (Cole Co. line relocation), $10,359; .84 mi. (McKirk relocation), $3,025; .68 mi. (Sect. A Clarksburg Project), $3,240; .8 mi. (Sect. B Clarksburg Project), $3,557; .95 mi. (Brants relocation), $4,692. Noted Dec. 16.

Missouri—State Highway Dept., Farmington, received bids Dec. 10, building 3.25 mi. state road from Madison Co. line toward Libertyville, State Aid Project S 20.13, St. Francois Co., involving (1) 23,252 cu.yd. earth excav., (2) 1,415 cu.yd. rock excav., (3) 1,894 cu.yd. borrow, (4) 138.6 cu.yd. Class B concrete masonry, (5) 40.3 cu.yd. Class C concrete masonry, etc., from F. T.

Streets and Roads (Continued)

O'Dell, Farmington; (1) $0.58 per cu.yd., (2) $1.85, (3) $0.40, (4) $25, (5) $23; J. Richardson, De Soto, (1) $0.59, (2) $1.99, (3) $0.39, (4) $30, (5) $27.50; E. K. Hawn, Farmington, (1) $0.57½, (2) $2, (3) $0.40, (4) $30, (5) $27.50. Noted Nov. 25.

Missouri—State Highway Dept., Milan, received bids Nov. 27, building 1.4 mi. road east and west through Milan, State Aid Project S 20.15, Sullivan Co., involving (1) 23,259 cu.yd. earth excav., (2) 2,454 cu.yd. borrow, (3) 109.8 cu.yd. Class B concrete masonry, (4) 1.2 cu.yd. Class C concrete masonry, (5) 8,222 lb. reinforcing steel, etc., from Frazier-Davis Co., Arcade Bldg., St. Louis, (1) $0.68 per cu.yd., (2) $0.65, (3) $29, (4) $29, (5) $0.09; C. P. O'Reilly, St. Louis, (1) $0.75, (2) $0.70, (3) $30, (4) $25, (5) $0.10; C. Gidinsky, 4211 Holmes St., Kansas City, Mo., (1) $0.85, (2) $0.70, (3) $30, (4) $25, (5) $0.10. Noted Nov. 4.

★**Missouri**—State Highway Dept., Nevada, let contract to Moss & Schuedler, Nevada, building 2.06 mi. state road from Horton northwest, State Aid Project S 20.12, Vernon Co., involving 5,123 cu.yd. earth excav., cost $0.54 per cu.yd., 18,074 cu.yd borrow, $0.54, 34.1 cu.yd. Class B concrete masonry, $30, 2.8 cu.yd. Class C concrete masonry, $29, etc., total cost $15,467; rein.-con. skew slab superstructure on Sta. 280 plus 00, 2.1 cu.yd. Class A concrete, $60, 90.2 cu.yd. Class B concrete, $26, etc., total cost $4,461; rein.-con. slab superstructure on Sta. 270 plus 45, 2.1 cu. yd. Class A concrete, $60, 152.3 cu.yd. Class B concrete, $27, etc., $6,999, both on above project.

Tex., Canadian—Hemphill Co. received bids Dec. 13, grading, surfacing and draining 13.44 mi. State Highway 4 from here to Lipscomb Co. line, from A. H. Holt & Son, Canadian, $71,295; J. F. Hamer, Stop 6 Interurban, Ft. Worth, $82,300; McKnight & Howell, Amarillo, $95,353. Work involves 2.8 acres clearing and grubbing, 39,391 cu. yd. borrow, 48,721 cu.yd. earth, 1,866 cu. yd. solid and 829 cu.yd. loose rock excav., 28,302 lb. reinforcing steel, 11,307 cu.yd. clay surfacing, 157.2 cu.yd. Class "A," 280.9 cu.yd. Class "B," 32.2 cu.yd. Class "C" and 51.8 cu.yd. 1:2:3 concrete. Noted Dec. 2.

★**Tex., Center**—Shelby Co. let contract grading, gravel surfacing and draining 35.5 mi. State Highway 35, Federal Aid Project 224, to Smith Bros., Crockett, 474,054; including 10% for engineering and contingencies and gravel furnished by county, cost, $111,548. Work involves 105.68 cu.yd. Class A concrete, 4,522 lb. reinforcing steel, 186,559 ft. lumber, 9,644 lin.ft. treated timber, 144,031 cu.yd. earth, 101,189 cu.yd. earth borrow and 1,150 cu.yd. loose rock excav., etc.

Tex., Childress—Childress Co. received bids Dec. 13, clearing, grubbing, grading, surfacing and draining 10.11 mi. State Highway 4, from McKnight & Howell, Amarillo, $42,335; J. T. Rose & Son, Roaring Springs, $46,645; C. W. Burgess, 710 Haines Ave., Dallas, $50,881. Noted Dec. 2.

★**Tex., Dallas**—City let contract paving Ewing Ave. from southern city limits to southwest line of Jefferson Ave., 2 in. bitulithic wearing surface on 5 in. concrete base, to Texas Bitulithic Co., 1101-6 Prætorian Bldg., $184,192.

Tex., El Paso—El Paso Co. received bids Dec. 13, paving 12.61 mi. Fabens Rd., State Highway 1, (a) bituminous concrete with 2 in. wearing surface, (b) plain cement concrete base course, (c) course concrete pavement, (d) crushed stone and Class "C" concrete, from Lu-Moor Contg. Co., Two Republics Bldg., type (a) $306,321, type b, $285,012, (b) $163,815, (c) $396,885, (d) $207,776; El Paso Bitulithic Co., Piedras St., (c) $380,903. Noted Dec. 2.

★**Tex., San Antonio** — Bexar Co. let contract paving South Hackberry St. from Denver St. to Warwick Blvd., involving 10,800 sq.yd. rock asphalt or bitulithic pavement, to Southwest Bitulithic Co., Gunter Bldg., $39,915.

★**Tex., Sinton**—San Patricio Co. let contract grading, surfacing and building concrete and steel bridges and culverts on 12.5 mi. Corpus Christi Rd., State Highway 9, Rd. Dist. 5, from Defined Rd. Dist. 5, c/o Comrs. Benson, Caldwell and Vogel, at Sinton, $206,964; grading, surfacing and building concrete culverts on 15.06 mi. State Highway 9, Rd. Dist. 1, from Defined Rd. Dist. 1, c/o Comrs. Hurt, Williams and Harrison, at Sinton, $178,353; both including 10% for engineering and contingencies. Noted Dec. 16.

★**Tex., Waco**—McLennan Co. will gravel surface 5.16 mi. State Highway 7 from here to Tehuacana Creek, involving 22,703 gal. asphalt, 2,028 cu.yd. gravel and 45,400 cu.yd. bituminous cover material. Work will be done by day labor under supervision of J. P. Alexander, co. judge. Cost, $26,291; including 10% for engineering and contingencies. Noted Dec. 9.

★**Wash., Spokane**—Spokane Co. let contract paving 4 mi. Cheney Highway, concrete, to Moore Constr. Co., Spokane, $49,064.

Cal. Merced — Supervs. Merced Co. received bids building Le Grand Highway from Blumenkranz & Vernon, Stockton, $97,967; Graham & Jensen, Merced, $86,018. Above bids rejected. Work will be done by day labor under supervision of D. K. Thronton, rd. comr.

Railways

PROPOSED WORK

Michigan—Detroit, Toledo & Ironton Ry., Real Estate Exch. Bldg., Detroit, purchased 480 acre site in Flat Rock village, and having plans prepared for terminal yards and freight terminal. H. Ford & Co., River Rouge, engrs.

Minnesota — Minneapolis, Northfield & Southern Ry., 800 Hennepin Ave., Minneapolis, plans to build 12 mi. extension from Northfield to Faribault. About $125,000. H. E. Pence, pres.

Texas—See "Industrial Works."

Excavation and Dredging

PROPOSED WORK

Wis., Phillips — Ditch-Price Co. Farm Drainage Bd. having plans prepared building 3 mi. open ditch and laying 1 mi. 10 in. tile. Cost to exceed $15,000. R. Jakoubec, secy. L. M. Schindler, 721 Clark St., Appleton, engr.

BIDS DESIRED

Ia., Muscatine—Drainage—Until Jan. 12, by F. W. Johnston, aud. Muscatine Co., building drainage improvements in Sub-Dist. 1, D.D. 13. C. H. Young, c/o Central States Eng. Co., Muscatine, ch. engr.; advertised in this issue. Noted Dec. 9.

Minn., Bemidji—Ditch—Until Jan. 7, by A. D. Johnson, aud. Beltrami Co., and R. C. Fraser, aud. Koochiching Co. (International Falls) redigging Lateral 2, Judical Ditch involving 38,600 cu.yd. excav. About $25,000. W. M. Everts, Bemidji, engrs.

Minn., Granite Falls—Ditch—Until Jan. 4, by G. H. Wilson, aud. Yellow Medicine Co., and R. D. Houdersheldt, aud. Lyon Co., (Marshall), building Judicial Ditch 17, involving 4,313 cu.yd. open work, 28,280 ft. 6-20 in. tile. About $25,000. J. Leas, Cottonwood, engr. Noted Oct. 7.

Minn., Waseca—Ditch—Until Jan. 7, by Waseca Co. building Co. Ditch 21, involving 15,040 lin.ft. 6-26 in. tile, 8 surf water inlets, etc. About $23,412. G. Cox, Waseca engr. Noted Dec. 23.

Mo., New Madrid — Ditches, etc. — Until Jan. 5, by C. L. V. Jones, clk. New Madrid Co., constructing Little Otter Slough Ditch, involving 179,768 cu.yd. excav. and 85.43 acres clearing; ditch along south line of St. Louis, Iron Mt. & Southern R.R., 12,102 cu.yd. excav.; Main Ditch, 452,060 cu.yd. excav. and 160.15 acres clearing; Little River Ditch, 102,388 cu.yd. excav. and 69.92 acres clearing. All above ditches in D.D 12.

Ont., L'Orignal—Drain—Until Feb. 15, by J. H. Menthol, R.R. 2, Vankleek Hill, for excav. and concrete work on O'Brian Drain, in Caledonia and Alfred Twps., for Prescott Co. Work involves 138,350 cu. yd. earth excav., 961 cu.yd. concrete for culverts, etc. About $75,000. Magwood & Stidwell, Cornwall, engrs.

PRICES AND CONTRACTS AWARDED

(★Indicates award of contract)

★**Ia., Mt. Pleasant**—Ditch—Henry Co. and Whiteside Co. (Morrison), Ill., let contract for open ditch work in Rock River Drainage and Leve Dist., involving 170,000 cu.yd. excav., to Matthews Bros., Erie, Ill., $14.96 per cu.yd.

Industrial Works

PROPOSED WORK

Mass., Worcester—Sleeper & Hartley, Inc., 335 Chandler St., preparing plans for 1 story, 60 x 200 ft. bill construction factory. About $50,000. Private plans.

N. Y., Brooklyn—Grasselli Chemical, Guardian Bldg., Cleveland, O., plans build 1 story chemical plant addition, rein.-con., brick and steel, rein.-con. ing, brick and concrete foundation, Newtown Creek, here. About $1 Lockwood-Green & Co., 101 Park Ave., York City, archts. and engrs.

N. J., Millville — Whithall-Tatum Co., Barclay St., New York City, having plans prepared by R. W. Pollock, archt., Chestnut St. Phila., for 2 story, 35 x ft., glass ware factory, brick, here.

N. J., Newark—Butterworth-Judd Corp., Doremus Ave., had plans prepared reconstructing 3 story factory. About $1 000. Private plans.

Pa., Hazleton—S. Liebowitz Sons, E. Mine St., plan to build 3 story, 30 x 190 shirt factory, on North Wyoming St. About $100,000. Architect and engineer not selected.

Md., Baltimore—General Chemical Co., Munsey Bldg., soon lets contract building 50 x 59 ft. concrete power house, on Race and Winder Sts. J. G. White Corp., 43 Exchange Pl., New York City, archts.

Va., Winchester—C. L. Robinson plans to build 2 story, 70 x 200 ft. plant. Project will mature in spring.

Tenn., Etowah—Louisville & Nashville R.R., Knoxville, plans to construct repair shops and machinery building to replace those destroyed by fire. Loss, $150,000. W. H. Courtney, ch. engr.

O., Cincinnati—J. H. McGowan, 916 4th Natl. Bank Bldg., plans to build factory addition, on 2nd St. and Central Ave. About $190,000. Tietig & Lee, 901 4th Natl. Bank Bldg., archt.

O., Cincinnati—Herold Motor Car Co., 920 Race St., plans to build 87 x 95 ft., rein.-con. and brick service station, rein.-con. flooring, at 214 Webster St. About $60,000.

Ind., Indianapolis—Polar Ice & Fuel Co., 20th St. and Northwestern Ave., opens bids about Jan. 10, building 1 story, 30 x 70 ft., brick and steel storage plant, brick foundation. About $75,000. A. C. Bishop & Co., 427 Guardian Bldg., Cleveland, archts. and engrs.

Mich., Flat Rock—See "Railways."

Ill, Chicago—A. Batik, care of A. Charvart, archt., 2621 Millard Ave., had plans prepared for 3 story, 40 x 120 ft, ice plant, mill construction, concrete foundation. About $60,000.

Wis., Berlin—W. C. Russell Moccasin Co. had plans prepared 3 story, 40 x 130 ft., brick, rein.-con. and steel factory, rein.-con. flooring, brick foundation, on Main St. About $75,000. W. C. Russell, pres. Private plans.

Wis., Jefferson—A. Hellemann & Co. plans to convert brewery into ice cream factory, and build 3 story, 70 x 112 ft., brick, rein.-con. and steel addition, rein.-con. flooring, brick foundation, on Main St. About $75,000. Architect not selected, probably private plans.

Wis., Okauchee—W. Schradenbach plans to build 2 story, 50 x 110 ft., rein.-con., brick and steel garage and show room, rein.-con. flooring, brick foundation, on Main St. About $75,000. Architect not selected.

Wis., Reeseville—Reeseville Canning Co., c/o O. A. Sell, plans to build 4 story, 60 x 185 ft., brick, rein.-con. and steel factory, rein.-con. flooring, concrete foundation on Main St. About $75,000. Architect not selected.

Wis., Rice Lake—H. Ashlin, Reuter Ave., plans to build 3 story, 60 x 150 ft. mill construction factory, concrete foundation, on Reuter Ave. About $75,000 Architect not selected.

Wis., Rosendale—Rosendale Produce Co. plans to build 3 story, 50 x 210 ft., brick, rein.-con. and steel warehouse, rein.-con. flooring, concrete foundation. About $80,000. Architect not selected.

Minn., St. Paul—Farmers Consolidated Distributing Co., 935 Andrus Bldg., Minneapolis, plans to build 3 story, 75 x 125 rein.-con., brick and tile factory, on Prior Ave. and Montague Pl. About $350,000 Architect not selected.

Minn., South St. Paul—St. Paul Union Stock Yards Co., 631 Exch. Bldg., plans to build rein.-con., brick and stone stock pavilion. About $500,000. Architect not announced.

Industrial Works (Continued)

Tex., Amarillo—Ft. Worth & Denver Ry. Co., Bogard Bldg., Ft. Worth, plans to expend $200,000 to improve shops and yards. Project also includes new machinery, additional tracks, erection 5 engine stalls and power and electric light plant. F. E. Clarity, vice-pres. and genl. mgr.

Ont., Brantford—City receives bids about Jan. 15, building 75 x 120 ft. addition to electric station. About $80,000. Address A. MacBride, Mayor.

Ont., London—Canadian Vitex Feed & Milling Co., Toronto, plans to build rein.-con. feed mill, here. About $75,000.

Cal., Los Angeles—Atchison, Topeka & Santa Fe R.R., Kerckhoff Bldg., having plans prepared by W. H. Mohr, archt., 761 Kerckhoff Bldg., for 4 story, 85 x 275 ft. ice plant, rein.-con., brick and steel, rein.-con. flooring, concrete foundation, at Hobart Sta.

BIDS DESIRED

Va., Richmond—Crystal Ice Co., 525 Brooke Ave., receiving bids altering 3 story plant. About $50,000. R. H. Greene and W. P. Thurston, Merchants Natl. Bank Bldg., archts.

Fla., Bartow—Until Jan. 3, by B. C. Bonfoey, archt., Tampa, building 2 story, 50 x 75 ft. brick newspaper plant, concrete and Spanish tile flooring, brick foundation, here, for Polk Co. Record. About $75,000. J. G. Gallemore, editor.

Wis., Manitowoc—Manitowoc Shipbuilding Co., 16th St. and Manitowoc River, receiving bids building 1 story, 60 x 180 ft. round and power house, brick, rein.-con. and steel, rein.-con. flooring, brick foundation, on 8th St. About $75,000. Private plans.

Wis., Valders—Juul-Smith, archts., Imig Bldg., Sheboygan, receiving bids building 2 story, 34 x 150 ft., rein.-con., brick and steel garage, rein.-con. flooring, concrete foundation, on Main St., for W. F. Christel. About $75,000. Noted Dec. 9.

PRICES AND CONTRACTS AWARDED

(★Indicates award of contract)

★R. I., Pawtucket—Hope Webbing Co., 1005 Main St., let contract building 5 story, 80 x 190 ft. brick and steel addition to plant, also 1 story, 20 x 26 ft. boiler house, for Central Constr. Co., Slater Trust Bldg. About $300,000. Noted Dec. 2.

★N. Y., Brooklyn—W. Ulmer Brewery Co., 3 Belvidere Ave., will build 1 story, 100 x 195 ft., rein.-con., brick and steel garage, rein.-con. flooring, concrete foundation, on Myrtle Ave. near Bway. About $75,000. Work will be done by day labor.

★N. Y., Brooklyn—S. Ageloff, 126 Reid Ave., will build 1 story, 100 x 200 ft., brick and steel garage, rein.-con. flooring, concrete foundation, on Myrtle Ave. near Lewis Ave. About $100,000. Work will be done by day labor.

★N. Y., Brooklyn—S. A. Werthein, c/o C. L. Sefert, archt. and engr., 206 West 76th St., New York City, will build 1 story, 100 x 175 ft., brick and steel garage, rein.-con. flooring, concrete foundation, on Grand St. near Morgan Ave. About $70,000. Work will be done by day labor.

★N. Y., Brooklyn—J. T. Aaron, 936 St. Marks Ave., will build 1 story, 230 x 245 ft., brick and steel garage, rein.-con. flooring, concrete foundation, on Pacific St. near Schenectady Ave. Work will be done by day labor.

★N. Y., New York—A. C. Chesley & Co., 277 Rider Ave., will build 2 story, 50 x 200 ft., rein.-con., brick and steel factory, rein.-con. flooring, concrete foundation, on 132d St. and Cypress Ave. About $100,000. Work will be done by day labor. Noted Dec. 9.

★N. Y., New York—C. D. Nathan, c/o F. Savignano, archt. and engr., 6005 14th Ave., Brooklyn, will build 6 story, brick, steel and concrete factory, rein.-con. flooring, concrete foundation. About $100,000. Work will be done by day labor.

★N. Y., New York—J. Guarino, c/o D. Bleier, archt. and engr., 2366 Webster Ave., will build 1 story, 80 x 100 ft., brick and steel garage, rein.-con. flooring, concrete foundation, at 28-32 Hamilton St. About $75,000. Work will be done by day labor.

★N. J., East Orange—Jephson-Scott Body Co., 24 Sterling St., let contract building 2 story, 58 x 63 ft. factory, to C. R. Hedden Co., 763 Broad St., Newark. About $70,000. Noted Nov. 25.

★O., Cleveland—Mall Motor Co., 632 Superior Ave., let contract building 2 story, 130 x 160 ft., rein.-con., brick and steel garage, rein.-con. flooring, brick and concrete foundation, on Superior Ave. and East 12th St., to Lundoff-Bicknell Co., 5716 Euclid Ave. About $200,000. Noted Dec. 16.

★Wis., Fond du Lac—Latex Tire & Rubber Co. will build 2 story, 60 x 178 ft., rein.-con. and steel factory, rein.-con. flooring, concrete foundation, on East State St. About $40,000. Work will be done by day labor under supervision G. E. Mehner, archt., Fond du Lac.

Wis., Milwaukee—Sewerage Comn. received bids building and equipping electric power plant on Jones Island, (1) proposal 1, plant M-S, (a) alternate 1, (b) alternate 2; (2) proposal 2, M-S1, (a) alternate 1, (b) alternate 2, (c) alternate 3, (d) alternate 4, (e) alternate 5, (f) alternate 6; (3) proposal 3, plant M-S 2, (a) alternate 1; (4) proposal 4, plant P-F, (a) alternate 1; (5) proposal 5, plant P-F, (6) proposal 5, plant P-F 1, (a) alternate 1, (b) alternate 2, (7) proposal 6, plant P-F 2, (a) alternate 1, from Industrial Heating & Eng. Co., 143 Oneida St., (1) $309,000 (1a) $313,100, (1b) $313,800, (3) $356,100, (3a) $356,800, (5) $224 000, (7) $496 700; Edgemoore Iron Co., Edge Moor, Wilmington, Del., (1) $327,000, (1a) $332,000, (1b) $339,000, (4) $275,600, (4a) $287,600, (7) $512,000, (7a) $442,000; C. J. Fox, 1208 Grand Ave., (1) $330,500; W. A. Pope, 26 North Jefferson St., Chicago, Ill., (1) $344,400, (1a) $344,400, (1b) $355,300, (7) $525,900, (7a) $464,500; Downey Heating & Supply Co., 613 Clybourn St., (1) $358,187, (7) $564,832; Stephens-Adamson Mfg. Co., Ridgeway St., Aurora, Ill., (2) $60,763, (2a) $63,800, (2b) $65,300, (2c) $68,800, (2d) add $500 to alternates 1, 2 and 3, (2e) add $750 to alternates 1, 2 and 3; Phillips Lang Co., 342 South Dearborn St., Chicago, Ill., (2) $63,290, (2a) $59,890, (2b) $60,495, (2c) $63,600, (2d) $63,385, (2e) $66,775, (2f) $59,530; Chain Belt Co., 736 Park St., (2) $66,550, (2a) $69,950; Link Belt Co., 910 South Michigan Ave., Chicago, Ill., (2) $74,844, (2a) $67,602; Combustion Eng. Co., 38 South Dearborn St., Chicago, Ill., (6) $238,535, (6a) $167,775, (6b) 5,000 additional; Bonnot Co., 722 Mulberry Rd., S. E., Canton, O., (6) $275,000; Allis-Chalmers Mfg. Co. West Allis (Milwaukee, P. O.), (6) $438,230, (6a) $437,200. Noted Oct. 7.

★Minn., Elk River—Elk River Power & Light Co. let contract building addition to power house, to Siems, Helmers & Schaffner, 514 Guardian Life Bldg., St. Paul.

★Ont., Toronto—City will build 1 story, 80 x 100 ft. concrete and steel, concrete flooring and foundation, on Dundas St. About $50,000. Work will be done by day labor.

★Ont., Toronto—G. A. Morgan, 875 St. Clair Ave., let steel contract for 2 story, 60 x 80 ft. rein.-con. and steel garage, rein.-con. flooring, concrete foundation, on St. Clair Ave., to Hepburn & Desher, 18 Van Horne St.; concrete, to J. Harrop, 1414 Davenport Rd. Total cost about $50,000.

★Ont., Windsor—Universal Garage Co., 116 Chatham St. W., let contract building 2 story, 90 x 115 ft. rein.-con. and brick garage, rein.-con. flooring, concrete foundation, on Chatham St., to Wells & Gray, Ltd., Bank of Commerce Bldg. About $70,000.

Buildings

PROPOSED WORK

Me., Portland—Home—St. Joseph Roman Catholic Church rejected bids building 3 story, 40 x 150 ft. Will refigure in spring.

N. H., Groveton — Club House — Groveton-Paper Co., Inc., plans to build 2 story, 100 x 101 ft. brick and steel. Private plans.

N. H., Newington (Portsmouth P. O.)—School—School Com. having plans prepared by Dow, Harlow & Kimball, archts., 101 Tremont St., Boston, for brick school. About $75,000.

Mass., Boston —Office — Edison Electric Illuminating Co., 70 State St., plans to build 8 or 10 story, on Boylston St. Architect not selected.

Mass., Lynn — Schools — City plans to build high school, cost $400,000, elementary and primary schools, cost $50,000 each. Architect not selected.

Mass., Northampton—Club—Polish Naturalization Club had plans prepared by W. F. Pratt, archt., 229 Elm St., for 2 story, brick and steel, concrete foundation, on Main St. About $75,000.

Mass., Springfield — Church — Liberty Methodist Church, 4 Harvard St., having plans prepared by Howes & Howes, archts., 243 High St., Holyoke, for 1 story, brick on Carew, Liberty and Stockman Sts. About $75,000. Noted Dec. 16.

R. I., Providence — Hospital—Providence Lying-In Hospital, 96 State St., purchased large site on Pleasant Valley Parkway, and plans to build hospital. Architect not selected.

Conn., Hartford — Apartment — N. Carabillo, 210 Farmington Ave., plans to rebuild Jewell Court Aprtment. About $100,000. Architect not announced.

Conn., Hartford—Apartment—D. Tramonte, 109 Edwards St., having plans prepared by H. H. Beckenstin, archt., 340 Albany Ave., for brick and concrete. Cost between $125,000 and $150,000.

Conn., Hartford—Club—Moose Bldg. Assn. Inc., 450 Asylum St., plans to build 2 story, brick, on High St. Architect not selected.

Conn., Hartford—Hospital—Hartford Hospital, 20 Hudson St., having plans prepared by C. J. Malmfeldt, archt., Professional Bldg., for 6 story, brick, steel and rein.-con. addition. About $500,000. Noted Jan. 29.

Conn., Hartford—Temple—Masonic Hall Assn., 51 Ann St., plans to build fireproof. Architect not selected.

Conn., Milford—School—Bd. Educ. having plans prepared by R. Williams, archt., 185 Church St., New Haven, for 2 story, brick and steel addition to Walnut Beach School. About $85,000.

N. Y., New York—College—Manhattan College, 131st St. and Bway., plans to construct several brick and stone buildings, brick foundations, on Spuyten Duyvil Parkway opposite Van Cortlandt Park. About $1,000,000. Architect not selected.

N. Y., New York—Institution—Seamens Church Institute, c/o Warren & Wetmore, archts. and engrs., 10 East 47th St., plans to build 100 x 125 ft. brick, stone and steel, concrete foundation, about 11 story, at 41 Front St.

N. Y., Randalls Island (New York P. O.)—Kitchen and Dining Hall—Dept. Pub. Welfare, Municipal Bldg., New York City, plans to build brick and stone, concrete foundation, here. About $150,000.

N. J., Haddonfield — Clubhouse — Tavistock Country Club, c/o V. Bennet, 2d and Cherry Sts., Camden, having plans prepared by C. R. Peddle, archt., 130 South 4th St., Phila., for 2 story, 50 x 100 ft., stone. About $75,000.

N. J., Newark—School—Bd. Educ., City Hall, had plans prepared by J. B. Allen, archt., 1091 Sanford Ave., for 3 story, 165 x 205 ft. school, on Grove Ave. About $800,000.

N. J., Old Bridge—Church—Our Lady of Victory Church, c/o Berry & Cummiskey, archts., Real Estate Trust Bldg., Phila., plans to build 1 story, 40 x 105 ft., brick and stucco, here. About $100,000.

Pa., Butler—Bank and Office—First Natl. Bank having plans prepared by Simon, Brittain & English, archts., Magee Bldg., Pittsburgh, for 3 story, 51 x 60 ft., brick and steel, rein.-con. flooring, concrete and brick foundation. About $75,000.

Pa., Chester—Hospital—St. James Catholic Hospital, c/o J. F. Dunn, 3rd and Lloyd Sts., plans to build 1 story, stone. About $100,000. F. F. Durang, 1220 Locust St., Phila., archt.

Pa., Hazleton—Bank—Hazleton Slavonic Bank, 41 North Wyoming St., plans to build 1 story, 30 x 100 ft., marble and brick, at 1 East Broad St. About $150,000. Architect and engineer not selected.

Pa., McKeesport — Synagogue — B'nai Israel Congregation having plans prepared by Jallad, Lindsey & Warren, archts. and engrs., 129 Lexington Ave., New York City, for brick and stone, brick and stone foundation. About $200,000.

Pa., Northumberland — Church—United Brethren Church, c/o W. H. Lee, archt., 32 South 17th St., Phila., plans to build 1 story, stone. About $100,000.

Pa., Scranton — Theatre — Comerford Amusement Co., 303 Lackawanna Ave., plans to build theatre on Wyoming Ave. Cost between $150,000 and $200,000. L. Pempherd, Rochester, N. Y., archt.

Del., Laurel—High School—Bd. Educ. soon receives bids building brick and stone. About $200,000. V. W. Torbet, 200 5th Ave., New York City, archt. and engr.

D. C., Wash.—Church and Sunday School—Takoma Park Baptist Church plans to build stone. About $100,000. A. P. Clark, Jr., 816 14th St., archt.

D. C., Wash.—College—Augustinian Order having plans prepared by J. J. Kennedy, archt., Ford Bldg., Wilmington, Del., for college. About $300,000. F. J. McShane, 1041 Lawrence St., Brooklyn, D. C., pastor.

Buildings (Continued)

D. C., Wash.—College—Howard University having plans prepared by W. A. Hazel, archt., c/o owner, for home economics building, brick, steel and rein.-con. About $200,000.

D. C., Wash.—Store and Office—G. N. Ray, archt., 1147 Connecticut Ave., N. W., preparing plans for 7 story, brick, limestone and rein.-con. About $100,000. Owners name withheld.

Va., Norfolk—School—Bd. Educ. having plans prepared by Calrow, Wrenn & Tazewell, archts., Norfolk, for Western Junior High School, 4 story, 150 x 310 ft., brick and terra cotta, on Spottswood Ave. and Washington Park. About $700,000.

N. C., Monroe—High School—City voted $200,000 bonds to build and equip high school. Noted Dec. 9.

N. C., Raleigh—College—North Carolina State College of Agriculture and Engineering plans to construct agricultural building on campus. About $150,000. J. A. Salter, Raleigh, archt.

Ga., La Grange—Hotel—C. R. Callaway soon receives bids building 6 story, rein.-con., brick and steel, concrete foundation. About $350,000.

Fla., Tampa—Home—Childrens Home Society, c/o A. Maas, pres., 601 Boulevard, plans to build 2 story, 100 x 150 ft., rein.-con. and brick, on Florida Ave. About $150,000.

Fla., Tampa—Sunday School—Hyde Park Methodist Church, c/o L. M. Broyles, pastor, 524 Platt St., plans to build 1 story, 50 x 90 ft. brick, rein.-con. flooring, on Cedar Ave. About $90,000. Architect not selected.

Miss., Rosedale—School—Bd. Educ. had plans prepared by Alsop & Callahan, archts., Memphis, Tenn., for brick and stone. About $100,000.

O., Cleveland—Hospital—St. Clair Hospital, 4422 St. Clair Ave., plans to build brick and steel addition, brick foundation. About $75,000. Architect not selected.

O., Columbus — Divinity Hall — Capitol University plans to build 1 and 2 story, probably rein.-con. and ordinary construction, on College Ave. and East Main St. About $150,000. Perkins, Fellows & Hamilton, 814 Tower Court, Chicago, archts.

O., Columbus—Schools—Bd. Educ. receives bids about Jan. 1, remodeling East, South, North High Schools, Mitchell, Bellows and Eastwood Aves. grade schools. Noted June 4.

O., Maple Heights (Bedford P. O.) — School—Bd. Educ. having plans prepared by C. W. Bates, archt., Natl. Bank Bldg., Wheeling, W. Va., for 3 story, 13 room, rein.-con., brick and steel addition, rein.-con. flooring, brick and concrete foundation, on Libby Rd. About $300,000. Noted Dec. 2.

O., Ravenna—School—Bd. Educ. having plans prepared by O. D. Howard, archt., 8 East Broad St., Columbus, for 3 story, 20 room, rein.-con., brick and steel, rein.-con. flooring, brick and concrete foundation. About $300,000.

O., Rocky River—Bank—Riverside Savings & Loan Co. having plans prepared by R. H. Hinsdale, archt., Bangor Bldg., Cleveland, for 2 story, 25 x 100 ft., rein.-con., brick and steel, rein.-con. flooring, brick foundation. About $100,000. J. A. Spitzig, secy. Noted March 25.

O., Springfield — Courthouse — Comrs. Clark Co. open bids about Feb. 1, building 3 story, 100 x 156 ft. fireproof, on Limestone and Columbus Sts. About $250,000. W. K. Shilling, Fox Hollow Farm, R. 7, archt.

Ind., Bluffton—School—A. E. Hunt, trustee, R. R. 5, receives bids about Jan. 28, building 2 story, 80 x 108 ft., concrete and brick, in Lancaster Twp. About $110,000. O. Hoffman, Decatur, archt.

Ind., Hammond—Temple—H. G. Schmidt & Co., archts., 154 West Randolph St., Chicago, soon lets contract building 3 story, 184 x 218 ft., rein.-con., brick and stone, here, for Masonic League. About $350,000.

Mich., Gladstone — School — School Bd. opens bids in February, building 2 story, 63 x 130 ft. and 60 x 80 ft. rein.-con. and brick, rein.-con. flooring, concrete foundation. About $140,000. G. Arntzen, Escanaba, archt.

Ill., Chicago—Church—Buena Memorial Presbyterian Church, 4241 Sheridan Rd., plans to build church on Sheridan Rd. and Bway. About $250,000. I. V. Naess, 64 East Van Buren St., archt.

Ill., Chicago—Hospital—G. Bass, 6055 Euclaire Ave., plans to build hospital at 460 East 32nd St. About $1,000,000.

Ill., Chicago—Hotel—A. R. Jones Syndicate purchased site on Jackson Blvd., Canal and Clinton Sts., and plans to build large hotel. Marshall & Fox, 721 North Michigan Blvd., archts.

Wis., Antigo—Theatre—H. E. Hanson, c/o Palace Theatre, plans to build 2 story, 60 x 110 ft., brick, rein.-con. and steel, rein.-con. flooring, concrete foundation, on 5th Ave. About $100,000. Architect not selected.

Wis., De Pere—High School—Bd. Educ. having plans prepared by Foeller & Schoebber, archts., 123 North Washington St., Green Bay, for Union High School, 4 story, 60 x 210 ft., brick, rein.-con. and stone, rein.-con. flooring, brick foundation, on Main St. About $150,000. N. Van Sustine, secy. Noted Sept. 23.

Wis., Fond du Lac—High School—Bd. Educ. had plans prepared by Childs & Smith, archts., 64 East Van Buren St., Chicago, Ill., for Senior High School, 3 story, 110 x 115 ft., tile and brick, rein.-con. flooring, concrete foundation, on Linden St. About $275,000 A. M. Hunter, secy.

Wis., Fond du Lac—Temple—Loyal Order of Moose plans to build 5 story, 80 x 82 ft., brick and terra cotta. About $143,000. B. E. Mehner, 6 East Division St., archt.

Wis., Kellnersville—School—Joint Dist. 9, c/o W. Hynek, clk., R. D., Cato, plans to build 1 story, 50 x 105 ft., concrete and brick, brick foundation, near here. About $75,000. Architect not selected.

Wis., Manitowoc—Hotel—North House, 426 North 9th St., plans to remodel hotel and build large unit, 2-3 story, 80 x 140 ft., rein.-con. and brick, concrete foundation, on Jay St. A. D. Killian, proprietor. Architect not selected.

Wis., Manitowoc—Memorial—H. A. Kelley, atty., 717 North 7th St., soliciting subscription to raise $250,000 funds to build 4-5 story, concrete, brick and stone, brick foundation. Architect not selected.

Wis., Manitowoc—Training School—Manitowoc Co. Bd. plans to build 3 story, 60 x 110 ft., brick, rein.-con. and stone, brick foundation, on 8th St. About $75,000. A. Schroeder, clk. Architect not selected.

Wis., Mayville—High School—Joint Free High School Dist. having plans prepared by Parkinson & Dockendorff, archts., Linker Bldg., La Crosse, for 4-5 story, 65 x 210 ft., brick, rein.-con. and stone, brick foundation, on Main St. About $100,000. Noted Oct. 28.

Wis., New Holstein — Church — Zion Lutheran Church having plans prepared by Leiser & Holst, archts., Brumder Bldg., Milwaukee, for 1½ story, 60 x 88 ft., brick, rein.-con. and tile, concrete foundation, on Main St. About $75,000. A. Halboth, pastor.

Wis., Oconto Falls—School—Bd. Educ. having plans prepared by Juul & Smith, archts., Imig Bldg., Sheboygan, for 1 story, 76 x 100 ft. high and grade school, concrete, brick and tile, brick foundation, on Main St. About $100,000. G. Krohn, secy.

Wis., Okauchee — Showroom, etc. — See "Industrial Works."

Wis., Reedsburg—High School—Bd. Educ. plans to build 2 story, rein.-con., brick and tile. About $100,000. A. B. Olson, principal. Architect not announced.

Wis., Sheboygan—Clinic—Clinic Bldg. Co., 1135 Michigan Ave., having plans prepared by E. A. Stubenrouch, archt., 1439 Maryland Ave., for 2 story, 80 x 90 ft., brick and stone, brick foundation, on 8th and Ontario Sts. About $125,000. J. Junck, secy. Noted Aug. 12.

Wis., Stevens Point—Hotel—F. L. Body, secy. Stevens Point Hotel Co., opens bids about March 1, building 5 story, 60 x 140 ft., brick, rein.-con. flooring, concrete foundation, on Main St. About $150,000. Architect and engineer not selected. Noted Dec. 2.

Wis., Tisch Mills—Bank and Office—Tisch Mills State Bank plans to build 2 or 3 story, 36 x 85 ft., concrete, brick and tile, concrete foundation, on Main St. About $80,000. Architect not selected.

Wis., Watertown Junction—Depot, Hotel, etc.—Chicago, Minneapolis & St. Paul Ry. Co., c/o J. T. Kellick, genl. mgr., Ry. Exch. Bldg., Chicago, preparing plans for 2-3 story, 60 x 105 ft., depot, hotel, restaurant, etc., brick and stone, concrete foundation, here. About $100,000. Private plans.

Wis., Waukesha — Hospital—Municipal Hospital, 831 Grand Ave., plans to build brick or stone and concrete, rein.-con. flooring, concrete foundation. About $150,000. V. Tichenor, pres. Bd. Dirs. Architect and engineer not selected.

Ia., Decorah—High School—City election Jan. 10, to vote on $150,000 bonds to build 2 or 3 story, rein.-con. and brick. Cost, $250,000. C. F. Barfoot, secy. Bd. Educ. Architect not announced.

Ia., Sioux City — Temple — H. Holmes, archt., 30 North Michigan Ave., Chicago, preparing plans and receives bids in March building 4 story (ultimately 10 story) 150 x 250 ft., rein.-con. and steel, rein.-con. flooring, concrete foundation, on 12th St. between Jackson and Nebraska Sts., for Masonic League, here. Beuttler & Arnold, Grain Exch. Bldg., associated archts. Noted July 1.

Minn., Hardwick — School—Consolidated School Dist, c/o Headley, supt. Rock Co. Luverne, plans to build 2 story, rein.-con. brick and tile, here. About $75,000. Architect not selected.

Minn., Hugo—School—Bd. Educ. having plans prepared by Foss & Foss, archts., St. Cloud, for 2 story, rein.-con. brick and tile. About $75,000.

Minn., Minneapolis—Hospital—State Bd. Control, Capitol, St. Paul, plans to build 3 or 4 story, rein.-con., brick, tile and stone, on State University campus, here. About $400,000. C. M. Johnston, 715 Capitol Bank Bldg., St. Paul, archt.

Minn., Minneapolis—Store, etc.—P. Hein, archt., 548 Builders Exch. Bldg., preparing plans for 2 to 3 story, 93 x 110 ft., rein.-con., brick and stone. About $100,000 Owner's name withheld.

Kan., Richmond—High School—Bd. Educ. having plans prepared by T. Williamson & Co., archts., 418 Central Natl. Bank Bldg., Topeka, for 2 story, rein.-con., steel and brick, rein.-con. flooring, rock foundation. About $75,000.

Neb., Norfolk — School — Bd. Educ. receives bids in February, building 2 story, 145 x 208 ft., fireproof. About $450,000. J. C. Stitt, Norfolk, archt. Noted Nov. 18.

S. D., Rutland—School—Bd. Educ. plans to build 2 story, rein.-con. brick and tile. About $75,000. W. L. Freed, Watertown, archt.

S. D., Vermilion—High School—Bd. Educ. receives bids about Feb. 1 building 3 story, 56 x 78 ft., rein.-con. and brick addition. About $75,000. W. E. Hulse & Co., 320 Grain Exchange Bldg., Sioux City, archts.

S. D., Winfred—School—Bd. Educ. plans to build 2 story, rein.-con., brick and tile. About $75,000. W. H. Beddow, pres. Architect not selected.

Mont., Lewistown — School — Bd. Educ. plans to build 2 story, rein.-con., brick and tile. About $125,000. A. A. Franzke, supt. Architect not announced.

Mont., Miles City—High School—Bd. Educ., c/o O. Lovett, supt. schools, had plans prepared for 3 story, rein.-con., brick stone and tile. About $400,000. Architect not announced.

Mont., Missoula—Library—University of Montana, University Ave., plans to build rein.-con. brick, stone and tile on campus. About $600,000. E. O. Sisson, pres. Architect not announced.

Mo., Kirkwood—School—City voted $205,000 bonds to build school. E. C. Harper, clk. Architect not selected. Noted Dec. 23.

Mo., St. Louis—Hotel and Mercantile—Syndicate c/o F. Obear, Arcade Bldg., plans to construct 110 x 150 ft. hotel and mercantile building, on Delmar and De Baliviere Sts. About $500,000. Architect not selected.

Mo., St. Louis—Sales—P. J. Bradshaw, archt., International Life Bldg., soon receives bids building 1 story, 100 x 210 ft., brick, concrete, stucco and terra cotta, on West Pine and Vandeventer Sts., for Vesper-Buick Auto Co., Grand and Lindell Aves. About $100,000

Mo., Springfield—Church—Campbell St. Methodist Church, South, plans to build 2 story, brick. About $100,000. W. F. McMurry, pastor. Architect not selected.

Col., La Junta—High School—School Dist. election Jan. 20, to vote on $200,000 bonds to build school.

Cal., Merced—Hotel—J. I. Mitrovich, archt., 542 46th Ave., San Francisco, preparing plans for 5 story, 130 x 320 ft. rein.-con., on L St. between 19th and 20th Sts. About $500,000. Owner's name withheld.

Cal., Oakdale—School—Grammar School Dist. plans election about Jan. 20 to vote on $135,000 bonds to build 2 story, brick or rein.-con. W. H. Weeks, 75 Post St., San Francisco, archt.

Cal., San Francisco — Theatre—Lowe, Ackerman & Harris having plans prepared by Reid Bros., archts., 105 Montgomery St., for rein.con. and steel, on Post and Powell Sts.

Ont., Toronto—Schools—Bd. Educ. plans to build following schools in 1921: St. Clair Ave. W., 8 rooms; east of Prospect Cemetery, 8 rooms; Sunnyside School, 8 rooms; Ryerson School, 18 rooms; Monarch Park

Buildings (Continued)

6 rooms; and Woodbine School, 6 rooms, cost $800,000; also additions to Dufferin St. School, 6 rooms; Hester How School, Glenholme Ave. School, Wilkinson School, and Gledhill School, all 4 rooms, cost $400,000.

B. C., Prince Rupert—Court House—Provincial Government, Victoria, rejected bids building 4 story, here. New bids will be received when prices become stabilized. H. Whitaker, Pub. Wks., Dept., Victoria, archt.

BIDS DESIRED

Mass., Jamaica Plain (Boston P. O.)—Theatre—W. A. Dykeman, archt., 120 Tremont St., Boston, receiving bids building superstructure for 1 story, 85 x 120 ft. rein.-con., brick and steel, rein.-con. flooring, on Centre St., for Jamaica Amusement Co., 37 Tremont St., Boston. About $100,000. Noted Nov. 4.

Mass., Plymouth—Memorial Hall—Town Memorial Comn. receiving bids building 2 story, 127 x 250 ft. concrete, brick and steel, rein.-con. flooring, concrete foundation, on Court St. About $250,000. Little & Russell, 45 Bromfield St., Boston, archts. Noted June 10.

Conn., Hartford — Hotel — Lockwood, Greene & Co., archts., 60 Federal St., Boston, receiving bids altering Heublein Hotel, 98 Wells St., 6 story, brick and steel. About $75,000. Noted Dec. 16.

Conn., New London—Hospital—D. S. Donnelley, archt., Plant Bldg., receiving bids constructing 3 story, 46 x 98 ft. maternity building and 4 story, 48 x 86 ft. addition to main building, brick, rein.-con. flooring, concrete foundation, on Ocean and Montauk Aves., for Lawrence Memorial Hospital. About $100,000.

N. Y., Buffalo—Schools—Until Jan. 19, by Bd. Educ., building P. S. 21, 3 story, 186 x 450 ft., on Parklake Ave., cost $500,000; P. S. 9, 2 story, on Poplar Ave. and Doat St., $350,000; P. S. 21, 3 story, on Hertel and Camden Aves., $500,000, all rein.-con., brick and steel, rein.-con. flooring, brick and concrete foundations. Associated Architects, Inc., 232 Delaware Ave., archts. and engrs. Noted July 8.

Pa., Butler—Station—Harmony & Short Line Co., Pittsburgh, receiving bids 2 story, 35 x 77 ft., concrete, brick and steel, rein.-con. flooring, on Cunningham St., here. About $75,000. W. G. Wilkens Co., Westinghouse Bldg., Pittsburgh, archts.

Pa., Phila.—Store—B. Miller, 607 South 2d St., receiving bids building 4 story, 27 x 60 ft., brick and steel, at 106 North 2d St. About $75,000. I. W. Levin, Mutual Life Bldg., 10th and Chestnut Sts., Phila., archts.

Pa., Pittsburgh—Office—Until Jan. 3, by J. T. Windrim, archt., Commonwealth Bldg., Phila., building 3 story, 60 x 125 ft., concrete, brick and steel, here, for Bell Telephone Co., 12th and Arch Sts., Phila. About $200,000.

O., Bedford—High School—Until Jan. 15, by Bd. Educ. building 2 story, 100 x 185 ft., rein.-con., brick and steel, rein.-con. flooring, brick and concrete foundation. About $400,000. Former bids rejected. Noted Dec. 2.

O., Coshocton—Museum—J. H. Johnson receiving bids building 3 story, 42 x 84 ft., brick and steel, brick and concrete foundation, on 3d and Mulberry Sts. Cost between $75,000 and $90,000. Mills, Rhines, Bellman & Nordhoff, 1234 Ohio Bldg., Toledo, archts.

O., Prospect—High School—Until Feb. 8, by Bd. Educ., building 2 story, 60 x 114 ft., brick and concrete. About $125,000. O. D. Howard, 8 East Broad St., Columbus, archt. Noted July 22.

O., Springfield—School—Until Feb. 15, by Bd. Educ., building 2 story, 110 x 128 ft., brick and concrete, on Burnett Rd. About $225,000. O. D. Howard, 8 East Broad St., Columbus, archt. Noted Oct. 21.

Mich., Channing—School—Until Feb. 1, by chairman School Bd., building 2 story, 90 x 100 ft., brick, rein.-con. flooring, concrete foundation. About $75,000. F. E. Parmelee, Iron Mountain, archt.

Wis., Two Rivers — High School — Bd. Educ. receiving bids building 3 story, 115 x 199 ft., brick, rein.-con. and steel, brick foundation. About $400,000. J. D. Chubb, North Dearborn St., Chicago, archt.

Minn., Renville—School—Until Jan. 18, by Bd. Educ. building 2 story, 146 x 273 ft. rein.-con., brick and tile. About $280,000. Croft & Boerner, 1066 Marquette Ave., Minneapolis, archts. Noted Oct. 28.

Neb., Norfolk—Hospital—Until Jan. 10, by E. B. Fairfield, c/o State Hospital Comn., Capitol Bldg., Lincoln, constructing 2 story, 55 x 113 ft. brick and concrete, rein.-con. flooring, at State Hospital for Insane, here. About $75,000.

S. D., Harrold—School—Until Jan. 18, by Bd. Educ., building 2 story, rein.-con., brick and tile. About $100,000. A. E. Groethe, secy. U. L. Freed, Watertown, engr. Noted Oct. 28.

S. D., McIntosh—School—Until Jan. 24, by Bd. Educ., building 2 story, rein.-con., brick and tile. About $150,000. E. J. Geers, clk. G. Issenhuth, Huron, engr.

Mont., Malta—Courthouse—Until Feb. 8 by Phillips Co. building 3 story, rein.-con., brick, tile and stone. About $200,000. F. F. Bossonet, Havre, archt. Noted May 20.

N. M., Albuquerque—Bank and Office—Until Feb. 1, by 1st Natl. Bank, 2nd and Gold Aves., constructing 8 story, 100 x 142 ft. About $500,000. Trost & Trost, 1817 Mills Bldg., El Paso, Tex., archts and engrs.

PRICES AND CONTRACTS AWARDED

(★Indicates award of contract)

★**R. I., Pawtucket**—Restaurant—J. and P. Coats, Inc., 366 Pine St., let contract building 2 story, 91 x 225 ft. with 41 x 80 ft. ell, concrete, brick and steel, rein.-con. flooring, concrete foundation, on Lonsdale Ave., to A. F. Smiley, Oak Hall Bldg. About $715,000. Noted Dec. 16.

★**N. Y., Ossining**—Prison—State Prison Bd., Albany, let contracts for construction work for addition, here, to G. Colon & Co., 81 East 125th St., New York City, $224,892; heating, to A. B. Barr Co., 6 River St., Yonkers, $21,500; plumbing, to J. J. Kenny Co., 236 West 20th St., New York City, $30,000. Noted Dec. 2.

★**Pa., Chambersburg**—School—Bd. Educ. let contract constructing 3 story, 50 x 120 ft. administration building and 3 story, 39 x 157 ft. dormitory, to have two 37 x 181 ft. wings, brick, at Penn Hall School, to C. E. Cump, Chambersburg. About $250,000. Noted Oct. 28.

★**Pa., Pittsburgh**—Office—Upper Union Mills, 33d St. and Pennsylvania Ave., let contract altering present building and constructing 3 story, 34 x 50 ft., rein.-con. addition, on Smaliman St., to Taupet, Bell & Conley, 5814 Ellsworth Ave. About $75,000.

★**O., Lakewood** (Cleveland P. O.)—High School—Bd. Educ. let general contract building 3 story, 110 x 165 ft., rein.-con., brick and steel, rein.-con. flooring, brick and concrete foundation, on Jackson Ave. and Clifton Blvd., to Drummond-Miller Co., 4500 Euclid Ave., Cleveland, $287,850; plumbing, to Weiss Plumbing & Heating Co., Cedar Ave., Cleveland, $21,714. Noted Dec. 23.

★**Ill., Anna**—Nurses Home—E. D. Martin, state archt., Springfield, let contract to Robinson Bros., Anna, building 2 story, 45 x 100 ft., concrete and brick, concrete foundation, for Anna State Hospital, here. About $90,000. Noted Dec. 23.

★**Ill., Chicago**—Post Office—H. M. Smith and B. W. Frank, 327 South La Salle St., let contract building 1 story, 100 x 109 ft., concrete and brick, concrete foundation, to Erickson-Johnson Co., 7147 Evans Ave. About $80,000.

★**Ill., Chicago** — School — Bd. Educ. let general contract building 2 story, 60 x 100 ft. rein.-con. addition to Woodrow Wilson School, 23rd St. and 57th Ave., to Cermak & Novotny, 6211 West 22nd St. About $100,000.

★**Ill., Cicero**—School—Bd. Educ. let general contract building 2 story, 60 x 100 ft., rein.-con. addition to D. H. Burnham School, 58th and West 18th Sts., to Schmidt Constr. Co., 133 West Washington St., Chicago. About $100,000. Noted Dec. 16.

★**Wis., Milwaukee**—Bank—Marshall & Illsby Bank, 374 Natl. Ave., let contract building 1 story, 30 x 40 ft. and 25 x 100 ft., rein.-con. and stone additions, rein.-con. flooring, concrete foundations, to Kroening Constr. Co., 221 Grande Ave. About $75,000.

★**Wis., Milwaukee** — Theatre — Saxe Amusement Co., 160 5th St., will remodel 2 story, concrete and brick, on Grand Ave. About $100,000. Work will be done by day labor. Noted Nov. 11.

★**Wis., Wautoma**—High School—School Dist. let contract building 2 story, 30 x 80 ft. and 40 x 80 ft. brick and timber additions, concrete foundations, to C. M. Radley, Wild Rose. About $75,000; cost plus percentage basis.

★**Wis., West Bend**—Church—St. Peter & Paul Roman Catholic Church let contract building 53 x 134 ft., rein.-con and brick, to O. Neitge, Mankato, Minn. About $80,000; cost plus percentage basis.

★**Minn., Ontonagon**—Bank—First Natl. Bank let contract building 2 story, 30 x 70 ft. concrete and brick, rein.-con. flooring, concrete foundation, to A. Moorman & Co., 501 Minnesota St., St. Paul. About $75,000. Noted Dec. 16.

★**Neb., Omaha**—Church—West Minister Presbyterian Church, 29th and Mason Sts., let contract building 1 story, 75 x 125 ft., rein.-con. and brick, rein.-con. flooring, concrete foundation, to Kleiette Bros., Omaha. About $150,000.

★**Neb., Omaha** — Film Exchange — Home Builders, 18th and Dodge Sts., having plans prepared by J. T. Allen, archt., 224-26 Brandeis Theatre Bldg., for 8 story, 70 x 132 ft., rein.-con., on 18th and Davenport Sts. About $300,000. Work to be done by day labor.

★**Mo., St. Louis** — Hospital — Lutheran Hospital, 3500 Ohio Ave., let contract building 5 story, 40 x 120 ft., brick, concrete and steel addition, to M. C. Bartels Constr. Co., 4208 Gravois Ave. About $130,000. Noted June 10.

★**Okla., Talihina**—Sanitarium—State Bd. Public Affairs, Oklahoma City, let contract constructing 2 story sanitarium for tuberculosis, here, to include administration building, ward building and 2 cottages, to Manhattan Constr. Co., 3d and Fondulac Sts. Muskogee, $91,500. Noted Sept. 16.

★**Okla., Tulsa**—High School—Bd. Educ., 6th and Cincinnati Sts., let general contract building 4 story, 130 x 260 ft., rein.-con., steel and brick, rein.-con. flooring, to J. W. Van Horn, 214 C. C. Cole Bldg., $284,250. Noted Dec. 2.

Cal., Los Angeles—Hospital—Los Angeles Orthopaedic Foundation, Auditorium Bldg., let contract building 2 story, 85 x 104 ft. rein.-con., on Brockman Court, to Richards-Neustadt Co., Trust & Savings Bank Bldg. About $100,000. Noted Jan. 22.

Cal., Piedmont (Oakland P. O.) — High School—Bd. Trustees received bids Dec. 13, building 2 story, rein.-con., from C. Christensen & Son, 353 12th St., Oakland, $139,990; F. J. Westlund, 2207 10th Ave., Oakland, $140,500; Anderson & Ringrose, San Francisco, $148,188.

★**Ont., Toronto**—Synagogue—Beth Jacob Congregation, Manning Chambers, let brick contract for 1 story, brick and stone, rein.-con. flooring, concrete foundation, to Dominion Valley Brickworks, Dominion Bank Bldg.; masonry, to Ontario Bricklaying Co., 223 Palmerston Ave. Total cost about $100,000.

Federal Government Work

PROPOSED WORK

D. C., Wash.—Centrifugal Pump, etc.—U. S. Engineer, 305 Southern Bldg., rejected bids received Nov. 10, furnishing and installing electrically driven centrifugal pump, etc., at filtration plant. Noted Oct. 28.

BIDS DESIRED

N. Y., Brooklyn—Crane Run for Steel Storage—Spec. 4251—Until Jan. 5, by Bureau Yards & Docks, Navy Dept., Wash., D. C., building at Navy Yard, here.

Va., Quantico — Guard House General Service Building, etc.—Spec. 4334—Until Jan. 5, by Bureau Yards & Docks, Navy Dept., Wash., D. C., constructing at Marine Flying Field, here. Noted Dec. 9.

Tenn., Memphis — Stern-Wheel — Until Jan. 18, by Mississippi River Comn., 1st and 2nd Dists., Custom House, furnishing stern-wheel, steel steamboat "Luther L. Griffith"; advertised in this issue.

Ga., Tybee Island—Quarters—Spec. 4344—Until Jan. 12 by Bureau Yards & Docks, Navy Dept., Wash., D. C., constructing quarters and operating building, at Naval Radio Compass Station, here. Noted Dec. 16.

O., Cincinnati—Constructing Steel Hull—Until Jan. 20, by U. S. Engr., War Dept., 2nd Dist., Custom House, constructing or fabricating steel hull for snag boat "Kentucky"; advertised in this issue.

Mich., Grand Rapids—Mailing Vestibule, Extending Driveway, etc.—Until Jan. 10, by Treas. Dept., Wash., D. C., building mailing vestibule and extending driveway, here. J. A. Wetmore, superv. archt.

Mo., St. Louis—Return-Flue Boilers—Until Jan. 17, by Secretary Mississippi River Comn., 1311 International Life Bldg., furnishing 6 return-flue boilers for steamboat; advertised in this issue.

Tex., El Paso—Remodeling Custom House and Court House—Until Jan. 11, by Treas. Dept., Wash., D. C., remodeling, here. J. A. Wetmore, superv. archt.

Tex., Galveston—Dredging—Until Jan. 20, by U. S. Engineer, dredging Houston ship channel; advertised in this issue.

Federal Government Work (Continued)

N. M., Santa Fe—Post Office—Until Jan. 27, by Treas. Dept., Wash., D. C., building U. S. Post Office, here. J. A. Wetmore, superv. archt.

Ore., Astoria — Radio Building — Spec. 4351—Until Jan. 5, by Bureau Yards & Docks, Navy Dept., Wash., D. C., constructing here. Noted Dec. 16.

PRICES AND CONTRACTS AWARDED

(★Indicates award of contract)

Me., Bar Harbor—Electric Distribution System—Spec. 4341—Bureau Yards & Docks, Navy Dept., Wash., D. C., received bids Dec. 22, installing at Radio Station, Otter Cliffs, here, (1) work complete, from E. S. Downs Co., 9 Campbell St., Newark, N. J., $18,951 (180 days); G. E. Eng. Co., 22 Laight St., New York City, $20,813 (180 days); J. R. Proctor Co., 74 Courtlandt St., New York City, $21,620 (180 days). Noted Dec. 9.

D. C., Wash.—Remodeling and Altering Building—Bureau Yards & Docks received bids remodeling and altering Building "F," from Skinker & Garrett, 1415 G St., $14,000; W. E. Mooney, Evans Bldg., $15,750; Loehler Co., Franklin Natl. Bank Bldg., $15,850.

D. C., Wash.—Separation of Water Drainage System—Treas. Dept. received bids Dec. 22, building water drainage system and separating sanitary from water system in Auditors Bldg., from Federal Heating Co., 310 13th St., N. W., $17,597 (80 days); I. Freund, 1315 7th St., N. W., $17,899 (60 days); W. Wilby, Selma, Ala., $19,245 (150 days). Noted Dec. 9.

D. C., Wash. — Mechanical Equipment—Treas. Dept. received bids Dec. 22, furnishing in Mt. Alto Pub. Health Hospital, from Federal Heating Co., 310 13th St., N. W., $87,327; S. W. Rittenhouse, 1316 Harvard St., N. W., $91,226; Standard Eng. Co.,

Pa., Phila.—Dredging—U. S. Engineer, Room 815, Witherspoon Bldg., 1321 Walnut St., received bids Dec. 20, dredging in Delaware River, in lower part of Phila. Harbor, involving 600,000 cu.yd. excav., scow measurement, from Amer. Dredging Co., Marine & Merchants Bldg., $0.29 per cu.yd.; Great Lakes Dredge & Dock Co., Greenwick Piers, $0.68½.

★Mich., Kalamazoo—Remodeling Post Office, etc.—Treas. Dept., Wash., D. C., let contract remodeling and building mailing vestibule and driveway at Post Office, here, to W. MacDonald Constr. Co., Odd Fellows Bldg., St. Louis, Mo., $16,931. Noted Dec. 16.

★Cal., San Diego—Refrigerating Equipment—Spec. 4303—Bureau Yards & Docks, Navy Dept., Wash., D. C., let contract installing in Marine Barracks, at Naval Base, here, to York California Constr. Co., 308 3rd St., Los Angeles, $50,725 (120 days). Noted Dec. 9.

Miscellaneous

PROPOSED WORK

Playground—Dorchester (Boston P. O.) Mass.—City plans to excavate and grade 5 or 6 acres ground on Adams St., for playground. About $25,000. J. J. Murphy, 33 Beacon St., Boston, engr.

Equipment—New York, N. Y.—M. Hulbert, comr. docks, Pier "A," ft. of Battery Pl., North River, rejected bids received Dec. 9, furnishing and installing freight handling equipment on pier at ft. of East 5th St. East River. Contr. A, cargo beams and fittings; Contr. B, electric work; Contr. C, winches. Work will be readvertised. Noted Dec. 16.

Bicycle Stadium—Newark, N. J.—Books & Saddlemire, Inc., 41 Liberty St., New York City, having sketches made by Litchfield & Rogers, archts. and engrs., 477 5th Ave., New York City, for brick, stone and rein.-con. on Frelinghuysen Ave. near Dayton Ave. About $250,000.

Stadium—Nashville, Tenn.—Vanderbilt Athletic Assn. plans to build rein.-con. stadium on Kinsington Pl. About $100,000. Architect not selected.

Park—Columbus, O.—City having tentative plans prepared for park along east bank of Scioto River between Town and Broad Sts. About $150,000 appropriated for project. R. H. Simpson, city engr.

Road Machinery — La Crosse, Wis.—La Crosse Co. vetoed $51,000 bonds to purchase road machinery, to include 1 oiler truck, 1 roller, 2 crushers, heavy grader and tractor and power equipment for quarry. J. Hintgen, comr.

Patrol Machinery — Ladysmith, Wis. — Rusk Co. voted $1,500 bonds to purchase patrol machinery for 1921. P. Koehler, comr.

Dam and Transmission Lines—Ashland, Wis.—L. E. Myers Co., Ashland, plans to build concrete dam across Flambeau River between Ladysmith and Park Falls, also install transmission lines to serve light and power to upper state cities. About $3,000,000. L. E. Myers, Monadnock Bldg., Chicago, pres.

Machinery, etc.—Sheboygan, Wis.—Sheboygan Co. appropriated $50,000 to purchase machinery and equipment for gravel pits and $5,000 for road machinery. G. W. Ubbelohde, Court House, comr. Private plans.

Incinerator—Austin, Tex.—City defeated $25,000 bond issue to build garbage incinerator. New election will be held soon. C. E. Leonard, city engr. Noted Nov. 18.

Swimming Pool—Austin, Tex.—City defeated $20,000 bond issue to build swimming pool. New election will be held soon. C. E. Leonard, city engr. Noted Nov. 18.

Dam—Pomona, Cal.—City plans to build loose rock and earth fill flood control dam, 55 ft. concrete wall, 15 ft. below and 35 ft. above stream bed, at junction of Palmers and Cabel Canyons. About $348,500. Engineer not selected.

Wharf, Transit Shed, Etc.—San Francisco, Cal.—State Harbor Comn., Ferry Bldg., having plans prepared for 100 x 1,000 ft. wharf, 6 story, 100 x 800 ft. rein.-con. warehouse and transit shed, double platform on water side with traveling cranes and served with 3 tracks of Belt Line R.R., also reclaiming 5 acres between 3rd St., Channel St. and Pier 46, involving 250,000 cu.yd. earth fill. About $2,500,000. F. G. White, Ferry Bldg. engr.

Road Roller—Hamilton, Ont.—Barton Twp. plans to purchase steam road roller. About $6,000. A. J. Bryant, Hamilton, clk.

BIDS DESIRED

Crib—Trenton, N. J.—Until Jan. 4, by Bd. Freeholders Mercer Co., building stone and timber crib for protection to draw span of Olden Ave. bridge over Delaware and Raritan Canal. H. F. Harris, co.-engr.; advertised in this issue.

Laundry Equipment, etc. — Binghamton, N. Y.—Until Jan. 12, by State Hospital Comn., Capitol, Albany, for laundry machinery and electric elevator, for State Hospital, here. E. S. Elwood, secy.; advertised in this issue.

Plumbing and Drainage Brooklyn, — N. Y.—Until Jan. 6, by Dept. Pub. Welfare, 10th floor, Municipal Bldg., Manhattan, furnishing labor and material to complete Contr. No. 48379 (Dept. of Finance) which is for Contr. 2, plumbing and drainage work for erection of New Cumberland St. Hospital, Brooklyn. B. S. Coler, comr.

Asphalt Wearing Surface Sand, etc.—New York, N. Y.—Until Jan. 6, by H. H. Curran, pres. Manhattan Boro., furnishing and delivering, (Contr. 1) 7,000 cu.yd. asphalt wearing sand, (Contr. 2) 3,000 cu.yd. binder stone, (Contr. 3) 1,200 cu.yd. coarse aggregate for concrete, (Contr. 4) 400 tons coal tar paving cement, (Contr. 5) 400 tons asphaltic paving cement, (Contr. 6) 2,000 tons limestone dust, (Contr. 7) 2,000 cu.yd. paving sand, (Contr. 8) 1,500 cu.yd. paving grits, (Contr. 9) 10,000 bags Portland cement, (Contr. 10) 300,000 gal. refined asphalt, (Contr. 11) 200,000 gal. wood paving block.

Clay, Cement and Broken Stone, etc.—New York, N. Y.—Until Jan. 6, by G. A. Whalen, comr. Plant & Structures, Room 526, Municipal Bldg., furnishing and delivering (1) clay, cement, broken stone, sand, lime and plaster for Depts. of Parks in Manhattan, Brooklyn and Queens, Pub. Welfare & Water Supply, Gas & Electricity; (2) steel stringers; (3) girders to Dept. Plant & Structures.

Cast Iron Pipe, Valves, etc. — Douglas, Wyo.—Until Jan. 7, by E. R. Rouse, town clk., furnishing c.i. pipe valves and special castings, also furnishing labor and material for constructing c.i. collecting system and suction well. Prince & Nixon, Peters Trust Bldg., Omaha, Neb., engrs.

Culverts—Ontario—Until Jan. 10, by W. A. McLean, deputy minister of public highways, Toronto, building concrete structures on Provincial Highway in following townships: Contr. 192, Gloucester; Contr. 193, Cumberland; Contr. 194, Clarence; Contr. 195, North Plantagenet A; Contr. 196, North Plantagenet B; Contr. 197, Alfred, Longueuil and L'Orignal; Contr. 198, East and West Hawkesbury; Contr. 199, East Hawkesbury; Contr. 212, Toronto; Contr. 213, Toronto and Trafalgar; Contr. 215, Nelson; Contr. 216, Nelson and East Flamboro; Contr. 217, Toronto and Chinquacousy; Contr. 218, East and West Flamboro; Contr. 219, West Flamboro, Beverly, and Waterloo; Contr. 220, Waterloo, Guelph and Puslinch; Contr. 241, Ellice, Hibbert, Logan and Fullerton; Contr. 242, Hullett, McKillop, and Tuckersmith; Contr. 243, Hullett and Goderich; Contr. 244, Goderich; Contr. 246, Warwick Sect. B; Contr. 247, London and Buddulph; Contr. 248, London; Contr. 306, East Williams; Contr. 307, West Williams; Contr. 252, Barton and Glanford; Contr. 253, Glandford and Seneca; Contr. 254, Oneida; Contr. 255, Oneida and Walpole; Contr. 249, Louth and Grantham; Contr. 250, Niagara Sect. C; Contr. 251, Niagara and Stamford; Contr. 256, Stamford and Thorold; Contr. 257, Crowland and Wainfleet; Contr. 258, Wainfleet; Contr. 259, Moulton and Canboro; Contr. 260, Canboro; Contr. 261, Walpole; Contr. 178, Pittsburg Sect. C; Contr. 179, Pittsburg Sect. D; Contr. 180, Pittsburg Sect. E; Contr. 181, Leeds, Sect. D.

PRICES AND CONTRACTS AWARDED

(★Indicates award of contract)

★Dock Wall—Buffalo, N. Y.—E. S. Walsh, supt. Pub. Wks., Capitol, Albany, let contract building dock wall around Ohio Basin, here, Terminal Contr. 53-A revised to Great Lakes Dock & Dredge C., Morgan Bldg. About $435,000. Noted Nov. 18.

★Pier Fender, etc.—New York, N. Y.—G. A. Whalen, comr. Plant & Structures, Municipal Bldg., let contract repairing pier fender, southeast timber bulkhead and pile clusters, at Greenpoint Ave. Bridge over Newton Creek, to A. M. Spooner & Son, Pier 11, North River, $24,465. Noted Dec. 2.

Pavilions—Randalls Island (New York P. O.), N. Y.—Dept. Pub. Welfare, Municipal Bldg., New York City, received bids Dec. 20, altering (1) Tredgold Pavilion (2) Nightingale Pavilion, (3) combined, from Ansahr Constr. Co., (1) $26,860; Bertwin Constr. Co., 103 Park Ave., New York City, (1) $31,750, (2) $33,000, (3) $64,750; W. W. Constr. Co., (1) $33,950, (2) $32,950, (3) $65,800; S. Smith, Jr., 150 East 51st St., New York City, (1) $33,483, (2) $34,110, (3) $67,593. Noted Dec. 16.

★Hydraulic and Electric Machinery—St. John, N. B.—Water Power Comn. let contracts furnishing hydraulic machinery, to Morgan Smith Co., St. John, $93,056; electric machinery, to Canadian General Electric Co., 107 Park St., Peterboro, $162,000.

★Pipe—Vancouver, B. C.—City let contract furnishing 2,650 ft. 16 in. steel riveted pipe, to Vulcan Iron Wks., Granville Island, Vancouver, $5.15 per ft.

Applications before the Federal Power Commission, Washington, D. C., from November 27 up to and including December 18.

122. City of Los Angeles, Dept. of Pub. Serv., 603 Knickerbocker Bldg., Los Angeles, Cal. Preliminary permit for dam and reservoir, conduit and power house on South Fork, Kings River, just above location of Project 98, City of Los Angeles, for public utility.

123. City of Los Angeles, Dept. of Pub. Serv., 603 Knickerbocker Bldg., Los Angeles, Cal. Preliminary permit for dam and storage reservoir, diversion dam, conduits and power houses at Owens River Gorge, in Mono and Inyo Counties, Cal., for public utility.

124. Southern Sierras Power Co., c/o W. L. Huber, First National Bank Bldg., San Francisco, Cal. Preliminary permit to divert water from North Fork to South Fork of Whitewater River, second diversion dam and 12-mi. conduit to power house on main river in Sec. 5, T. 2 S., R. 3 E., S.B.M. Third diversion dam and 12-mi. conduit to second power house on Whitewater River in Sec. 26, T. 2 S., R. 3 E., in San Bernardino and Riverside Counties, Cal., for public utility.

125. Southern Sierras Power Co., c/o W. L. Huber, First National Bank Bldg., San Francisco, Cal. Preliminary permit for three diversion dams and 7-mi. conduit and power house at headwaters San Gabriel River, Los Angeles County, Cal., for public utility.

126. John R. Love and G. A. von Brecht, c/o J. D. Fisher, Colorado Springs, Col. License for dam, diversion, tunnel, power house, tailrace, transformer house and transmission line, Salmon River, Custer County, Idaho, for mining and milling.

127. Goodwin M. Trent, 317 Sharon Bldg., San Francisco, Cal. Preliminary permit for dam and reservoir, sec. 25, T. 11 N., R. 18 E., M.D.M., 13½-mi. pipe line, power house in Sec. 27, T. 12 N., R. 19 E., East Fork Carson River, Alpine County, Cal., for mining, reclamation, public utility.

128. City of Los Angeles, Dept. of Pub. Serv., 603 Knickerbocker Bldg., Los Angeles, Cal. Preliminary permit for dam, storage reservoir, conduit and power house, South Fork of Kern River, Tulare County, Cal., for public utility.

129. William R. Rust, 1208 Fidelity Bldg., Tacoma, Wash. Preliminary permit for small diversion dam, 2,000-ft. pipe line and power house with 250-hp. capacity in Cann Creek, 1 mi. from Lisianski Inlet, Sitka Mining District, Alaska, for mining purposes.

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Engineering News-Record

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UNUSUAL FEATURES include 200,000-volt transmission lines and larger units and higher reaction—Turbine heads that have previously been used.
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UNDER INTERNATIONAL AGREEMENT flow of St. Mary and Milk Rivers systematically shared by Montana and Provinces.
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BY M. W. TORKELSON.
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Factors Influencing Ultra Violet Light Water Treatment 1283
BY RUSSELL D. SCOTT.
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BY R. V. ORBISON.
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Engineering News-Record, December 30, 1920. 3 cols.

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ENGINEERING CONSIDERATIONS govern in selection of location for large plant to cost from $25,000,000 to $50,000,000.
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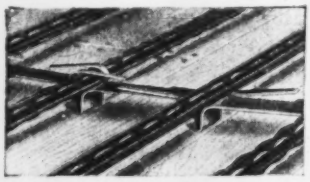
HAVEMEYER PRODUCTS

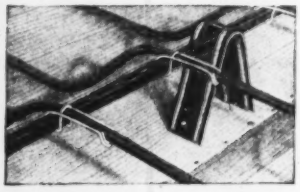
ANGLE NOSE CURB-BAR

ROUND NOSE CURB-BAR



SLAB BAR-SPACER

For supporting and spacing bars in the slab.

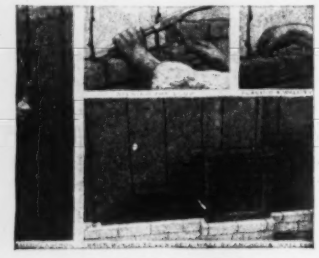


HY-CHAIR

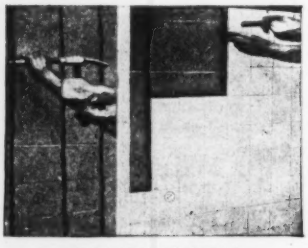
For supporting head rods over columns and over direct bands in flat slab and bent up bars over beams in beam and girder construction.

BEAM BAR-SPACER

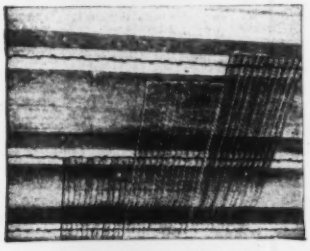
For supporting and spacing bars in beams and girders.



BRICK VENEERING



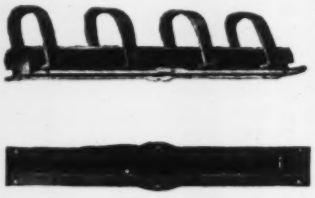
TILE WAINSCOTING



STEEL TILE CEILING

SECURITY-ANCHOR

FOR BONDING BRICK VENEER, TILE, ETC., HOLDING SUSPENDED CEILINGS, FLOOR SCREEDS, ETC.

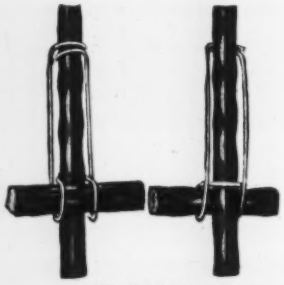


SLOTTED INSERT

"Y" SOCKET INSERT

NO. 5 DAYTON INSERT

NO. 3 DAYTON INSERT



NO. BAR-TY

TY-CHAIR

EASEL CHAIR

CONCRETE STEEL CO.

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All you need to know about Concrete Piling is the Raymond Method

A knowledge of this method will convince you that concrete piles so formed are formed according to the accepted practices of modern concrete engineering. Each concrete pile is cast in place in a protective form (a spirally reinforced steel shell) which is left in the ground.

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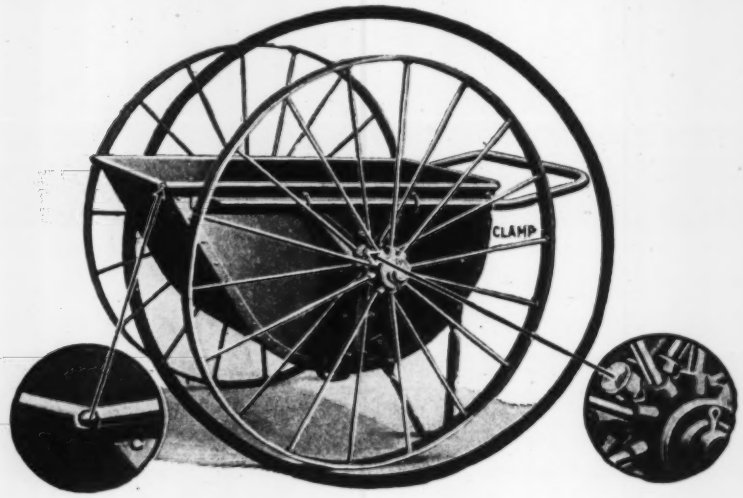
"A Form for Every Pile—
A Pile for Every Purpose"

RAYMOND
CONCRETE PILE

Sterling

STERLING ON A WHEELBARROW MEANS MORE THAN STERLING ON SILVER



Sterling Concrete Carts

Sterling Carts Are Always on the Job

Pushing along day after day with larger loads and making better time the Sterling Concrete Cart proves it's in a class by itself.

The longer you wheel 'em the easier they wheel—they stand up under the roughest toughest service you can put them to and you will never get even a squeak out of a Sterling.

They have self-lubricating 42-inch wheels—a heavy 12 gauge tray, reinforced with a solid continuous ½- inch rod—the handles extend the full length of the tray and are clamped on not bolted.

Any gang of men will wheel larger loads and make more trips with a Sterling Concrete Cart because they are better balanced and easier to push than any other cart on the market.

Sterling Wheelbarrow Company

NEW YORK BOSTON CLEVELAND MILWAUKEE, WIS. DETROIT CHICAGO ST. LOUIS

EXPORT DEPARTMENT
ALMACOA ALLIED MACHINERY COMPANY OF AMERICA ALMACOA

Light Weight Construction for Light Loads

Does it not seem uneconomical to design a floor construction which weighs nearly as much as the load it supports? Yet this is what must be done with many types of fireproof construction to support loads such as occur in apartment houses, schools, hotels, office buildings, etc. A great part of the materials of construction is thus used to support itself.

The light weight of Truscon Pressed Steel makes it ideal for light-occupancy buildings. The beams are light in weight and correspondingly easy to handle, while only a minimum of materials is required for the floor and ceiling. All members are shop fabricated, saving field labor. Merely set the beams in place, attach Hy-Rib Lath and apply plaster and concrete. No centering nor forms are required.

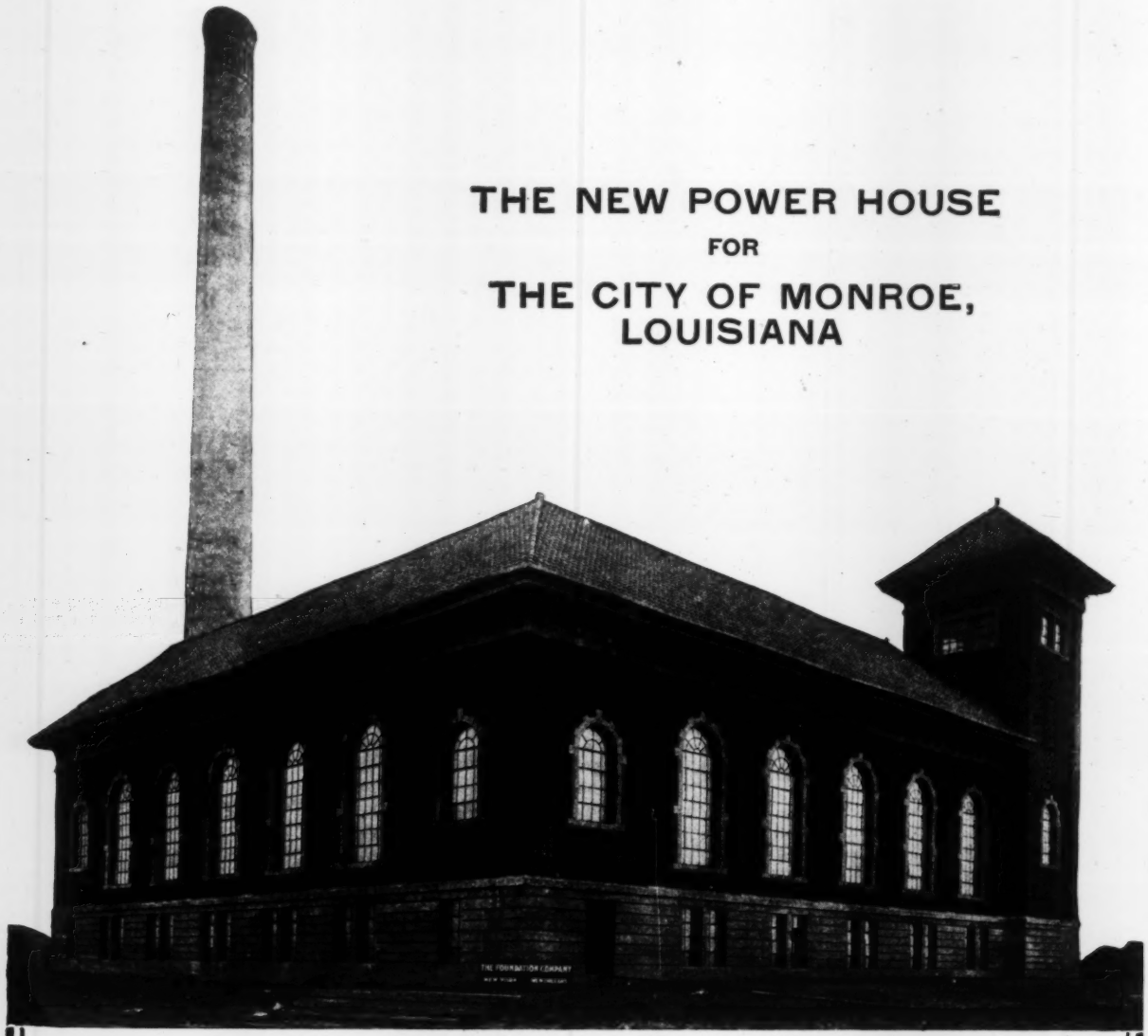
Truscon Pressed Steel Construction is fireproof and permanent and economical in all respects. It is the ideal construction for apartment buildings, schools, stores, hotels, etc. Endorsed by successful users in many important buildings.

On request, we will gladly furnish complete information, catalog, etc.
Structural Pressed Steel Dept.

TRUSCON STEEL COMPANY
(FORMERLY TRUSSED CONCRETE STEEL CO.)
YOUNGSTOWN, OHIO.
WAREHOUSES AND REPRESENTATIVES IN PRINCIPAL CITIES
Reinforcing Steel Metal Lath, Steel Windows, Steel Buildings, Pressed Steel, Cement Tile, Etc.

Truscon Pressed Steel Joists and Studs

TRUSCON STEEL CO.
TRUSCON
BUILDING PRODUCTS



THE NEW POWER HOUSE
FOR
THE CITY OF MONROE, LOUISIANA

The economical construction of any moderate sized plant such as the Power House for the City of Monroe depends largely upon the contractor's ability to man the job with an aggressive, well-trained organization.

Such an organization can be had only by the contractor who offers his men continuous employment. Eliminate the intangible but costly "drag" by employing the contractor whose forces have other good jobs awaiting them when yours is completed. This all important requirement is fully met by

THE FOUNDATION COMPANY
CITY OF NEW YORK

ATLANTA	SAN FRANCISCO	VANCOUVER, B. C.	LIMA, PERU
NEW ORLEANS	PITTSBURGH	MONTREAL, CANADA	HAVANA, CUBA
CHICAGO	DETROIT	PARIS, FRANCE	TAMPICO, MEXICO

BUILDERS OF **SUPERSTRUCTURES** AS WELL AS **SUBSTRUCTURES**

The P & H Excavator-Crane

AS A DRAGLINE

The P & H excavator-crane is a super standard dragline machine. It has a 30-foot boom ½ yard dragline bucket with a 9,500 pound dragline pull,—an operating speed of 100 feet per minute and non-clogging corduroy traction.

AS A BACKFILLER

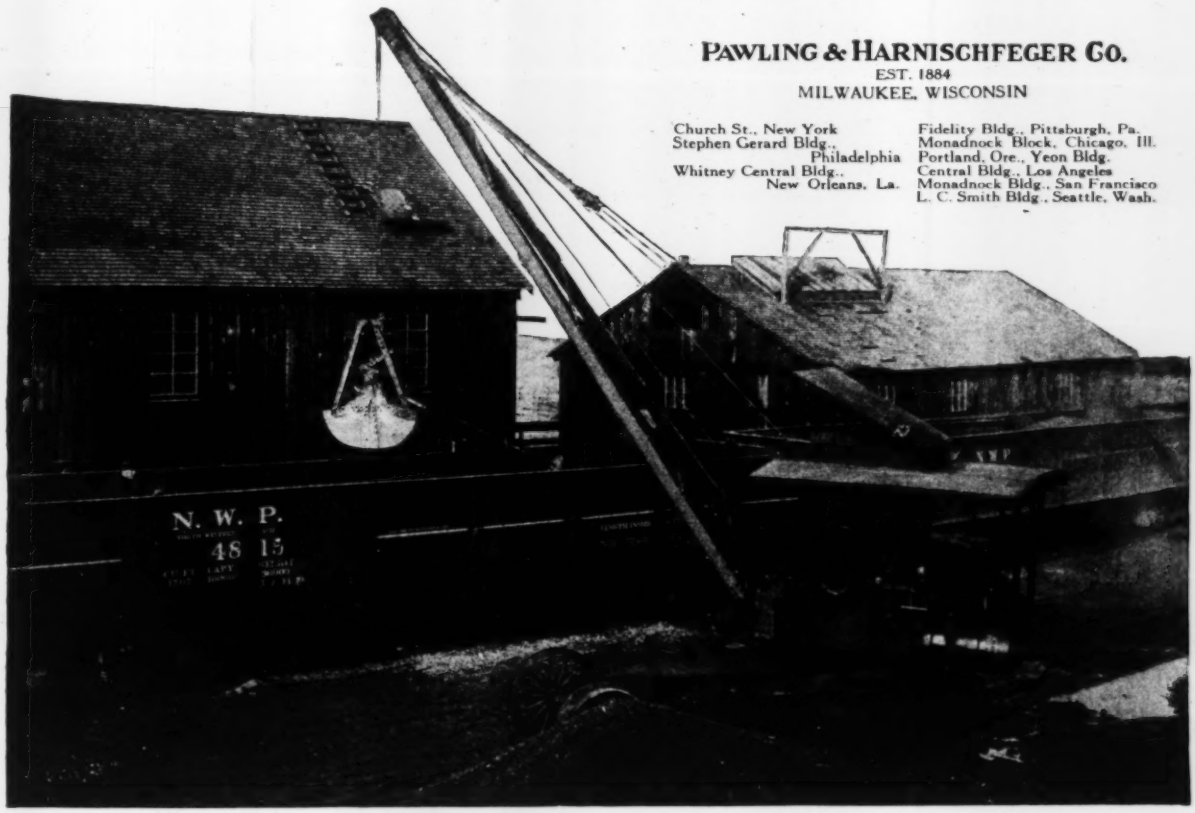
Equipped with a self acting scraper bucket an operator (not a licensed engineer) and one man can backfill large quantities of material in a day. Operating expense is low. All steel construction and careful supervision reduce breakdowns to a minimum.

AS A CRANE

Equipped with a hook or other grappling device the P and H instantly becomes a handy man on any job. It has ample power and does not require a licensed operator to run it.

AS A CLAM SHELL

For convenience and economy the P and H excavator crane equipped as a clam shell is in a class by itself For handling any loose material you have a machine that you will recognize at once as being efficient and economical.



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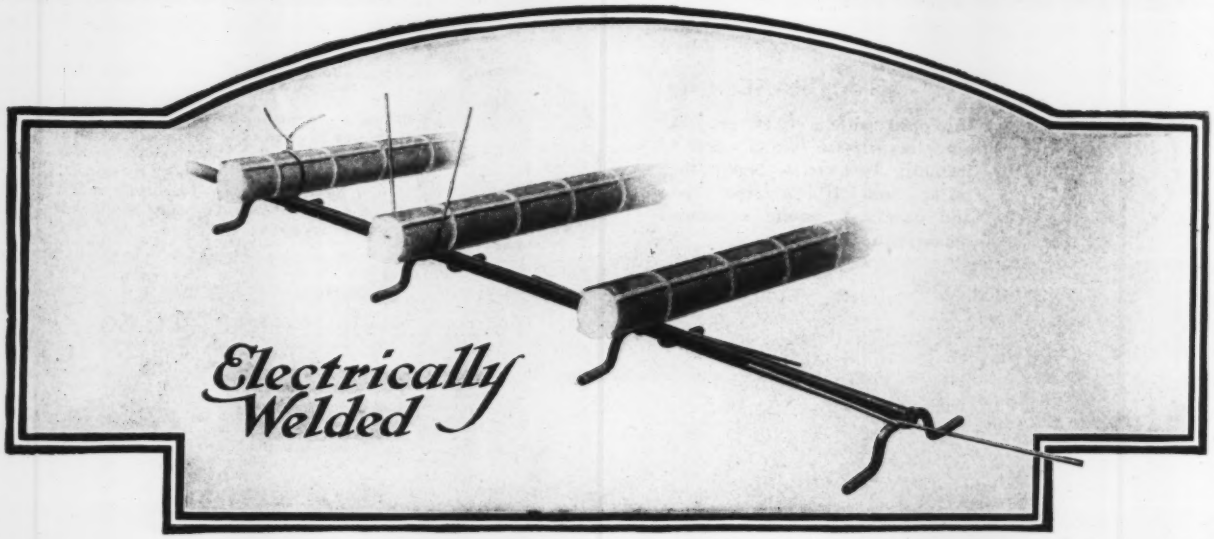
P&H — excavators — back-fillers - tampers

KALMAN
SLAB SPACERS



Spacers That Stand Up

Stiff steel rods with strong wire legs at bar locations to support and hold slab reinforcement exactly where it belongs.

Tie wires attached for rapid fastening of bars.

Made for SERVICE, in lengths and spacings to correctly carry out your design.

These spacers will NOT tip over, dig into forms, collapse when stepped on or obstruct flow of concrete.

Made Straight *Shipped Straight* *Reach the Job Straight*

KALMAN GRIP BARS
SHOP BENDING
SPIRALS

KALMAN SERVICE

BEAM CHAIRS
RIB CHAIRS
BAR CLIPS

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Cost Figures
for Road and Street Grading

JUST off the press

A new 8-page bulletin giving costs (1920 Season) on sub-grade excavation. Also costs of handling road materials—figured on 1920 basis

WE will be glad to send you a copy without any obligation on your part. Write your name on coupon and ma to

BALL ENGINE CO., Erie, Pa., U. S. A.

Builders of ERIE Steam Shovels, Locomotive Cranes, ERIE Railway Ditchers.

ERIE Revolving Shovels BALL

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Ball Engine Co., Erie, Pa. Gentlemen: Please send me your new 8-page bulletin for the 1920 Season: "*Cost Figures for Road and Street Grading*" advertised in *Engineering News-Record*.

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Address .....

Also please send me special bulletins describing the ERIE shovel on the classes of work which I have checked below:

☐Trench digging ☐Cellar excavation.
☐Handling gravel, sand, stone, etc., with clam-shell bucket.
☐Excavating sand and gravel
☐Clay and shale, etc.
☐Coal Stripping.

WHITLOCK Guaranteed CORDAGE

AMERICAN INDUSTRY MUST LOWER ITS OPERATION AND PRODUCTION COSTS. THEREFORE BUYERS OF ROPE FOR FACTORIES, FARMS AND STEAMSHIP LINES ARE DEMANDING WHITLOCK CORDAGE. THEY KNOW IT IS STRONGER, LASTS LONGER, AND ACTUALLY COSTS LESS BECAUSE IT HAS GREATER LENGTH PER POUND. THEY VISIT THE DEALER WHO CAN SUPPLY THEIR NEEDS.

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Let us tell you rope facts you should know

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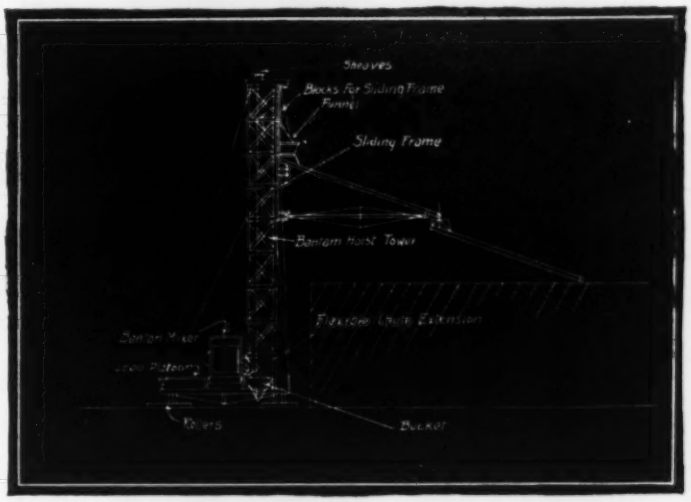
A Portable Plant for a Housing Project



Bring Your Concrete Problems to Ransome

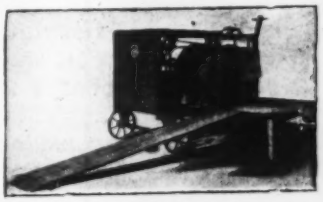
It's a Ransome Engineer's job to solve plant problems.

Here's one of the famous Ransome Bantam Mixers mounted on a platform, together with a Ransome Bantam Hoist Tower, Bantam Hoist Bucket and Ransome High Carbon Steel Chutes, the entire plant moving on rollers.

The contractor for whom this layout was made had a whole block of one-story houses to build. Ransome Engineers knew the "big little Ransome Bantam" was the most economical mixer to use and planned the plant on that basis.

It's another case where the fact that Ransome makes every kind of concrete machinery enabled Ransome Engineers to select the equipment best suited to the job, rather than to have to try to fit the job to a limited range of equipment.

Get the Ransome Bantam Bulletin—No. 103



7-S Ransome Improved Bantam Mixer —With Platform and Runways.

RANSOME

Ransome

CONCRETE MACHINERY CO.

1750 SECOND ST. DUNELLEN NEW JERSEY.

Manufacturers of Mixers, Pavers, Pneumatic Mixers, Chuting Plants, Hoist Buckets, Bins, Cars, Carts, etc

31-175

Decking the roof o: St. Louis Malle Castings Compar Plant, St. Louis, M with 70,000 sq. ft. of 5-foot Long Span Lap Joint Channel T Pyrobar Tile; Frank D. Chase, Inc., Engineers

2,000,000 Square Feet of U.S. PYROBAR Roof Tile

Do you think that Frank D. Chase, Inc., Engineers, would have used a total of 2,000,000 square feet of Pyrobar in three years if Pyrobar did not give absolute satisfaction?

Roof decks on industrial plants have a difficult task to perform, and these engineers have recognized by their repeated specification of Pyrobar Tile that Pyrobar meets the general and special requirements better than any other roof decking material.

They will tell you that Pyrobar's light weight saves a big percentage of its cost in steel framing and erection labor. They will testify that Pyrobar is fireproof, that it stops condensation, and that it insulates against heat and cold. And because of its low conductivity it saves a considerable sum both in initial heating installation and in fuel costs.

Pyrobar with its white, light-reflecting undersurface is used on every type of industrial roof—monitor, sawtooth, steep pitch and flat.

We erect Pyrobar. Consult with us on your roof decking problems, and let us submit an estimate. Bulletins on the different types of Pyrobar are sent on request.

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World's Largest Producers of Gypsum Products

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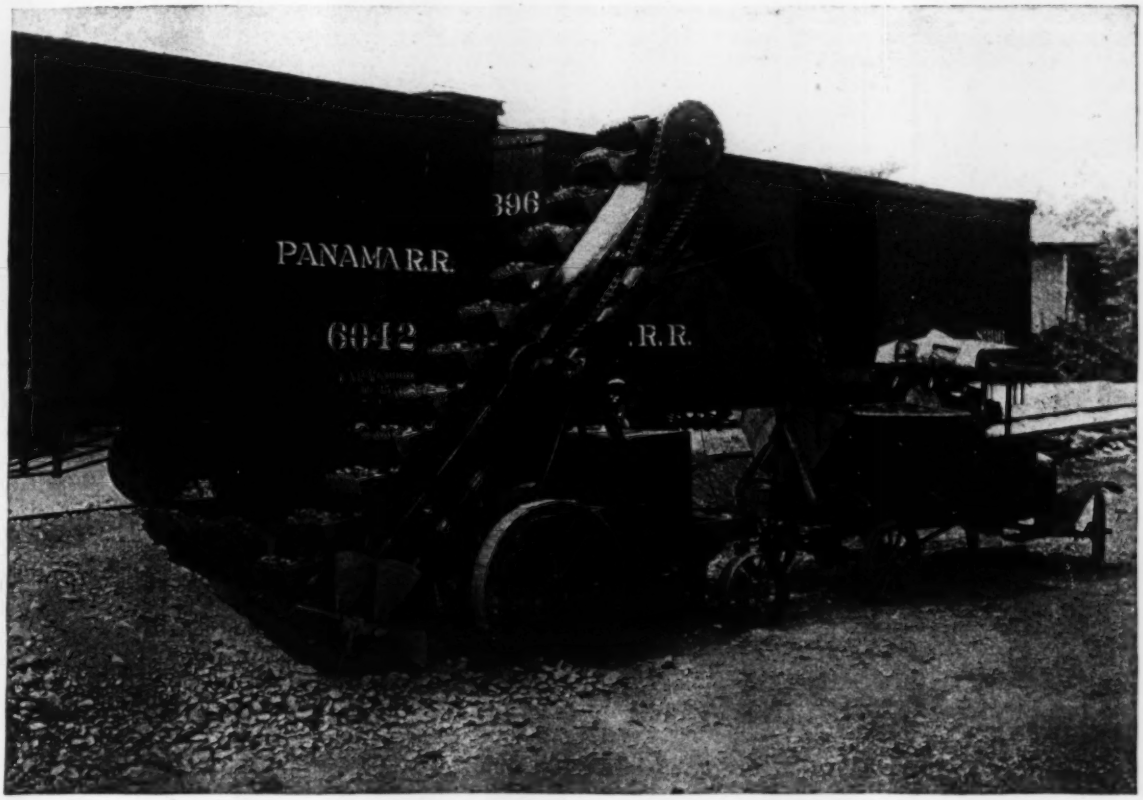
MINES AND MILLS

Oakfield, N. Y., Plasterco, Va., Cleveland, O., Gypsum, O., Genoa, O., Detroit, Mich., Alabaster, Mich., Grand Rapids, Mich., Milwaukee, Wis., Fort Dodge, Ia., Blue Rapids, Kansas, Southard, Okla., Eldorado, Okla., Piedmont, South Dakota, Loveland, Colorado, Denver, Colorado, Arden, Nevada, Amboy, Calif.



FIRST SEE THE DIFFERENCE!

IF you buy a wagon loader, your object for doing so will be to save labor, aid labor, increase your output, get more efficiency from your trucks and other equipment, and last but not least, to make better profits for yourself. But do you believe that in purchasing *any* machine called a "wagon loader" you will succeed in attaining these desirable aims?

Discouraging sincere and hopeful persons is anything but pleasant—yet they must be told—facts from experience—that they will surely make sorry mistakes, and poor investment of their capital if they buy ANY wagon loader.

Make a little effort and learn for yourself why there is so *much difference* between *any* wagon loader and the

HAISS "Path Digging" Wagon Loader

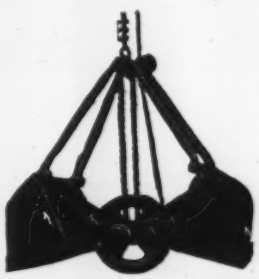
There is not space to explain all the differences, but these are the principal ones:

1. The patented Feeding Propellers are compelled to load fully, each passing bucket on the elevator.
2. The same Propeller Blades cut out a clean "path" into the material pile for the slow "crowding" and advancing loader wheels.
3. The "crowding" motion is developed by power drive, and may be in a straight or curved line.
4. No men are needed to shovel to the buckets.
5. The output is steady—at a speed of 1 cu. yd. per minute.
6. The power cost is less than 1c. per cu. yd. handled.
7. The Haiss Loader is Self-Propelled in both directions, and is equipped with the steering mechanism as on large auto trucks.
8. Built with engines from 10 to 30 hp. and with clearance heights under the loading chutes from 8-ft. 0-in. to 16-ft. 0-in.

Therefore, with every important operation on the "Path Digging" Wagon Loader accomplished by machinery and power, your own reasoning will convince you that efficiency and profits will be a reality and not a disappointment when a Haiss "Path Digging" Wagon Loader is operating at your plant.

New Booklet No. 820 is free; it tells how to solve a Problem in Profits. Write for it on your business stationery.

HAISS
Clam Shell
DIGGING BUCKETS

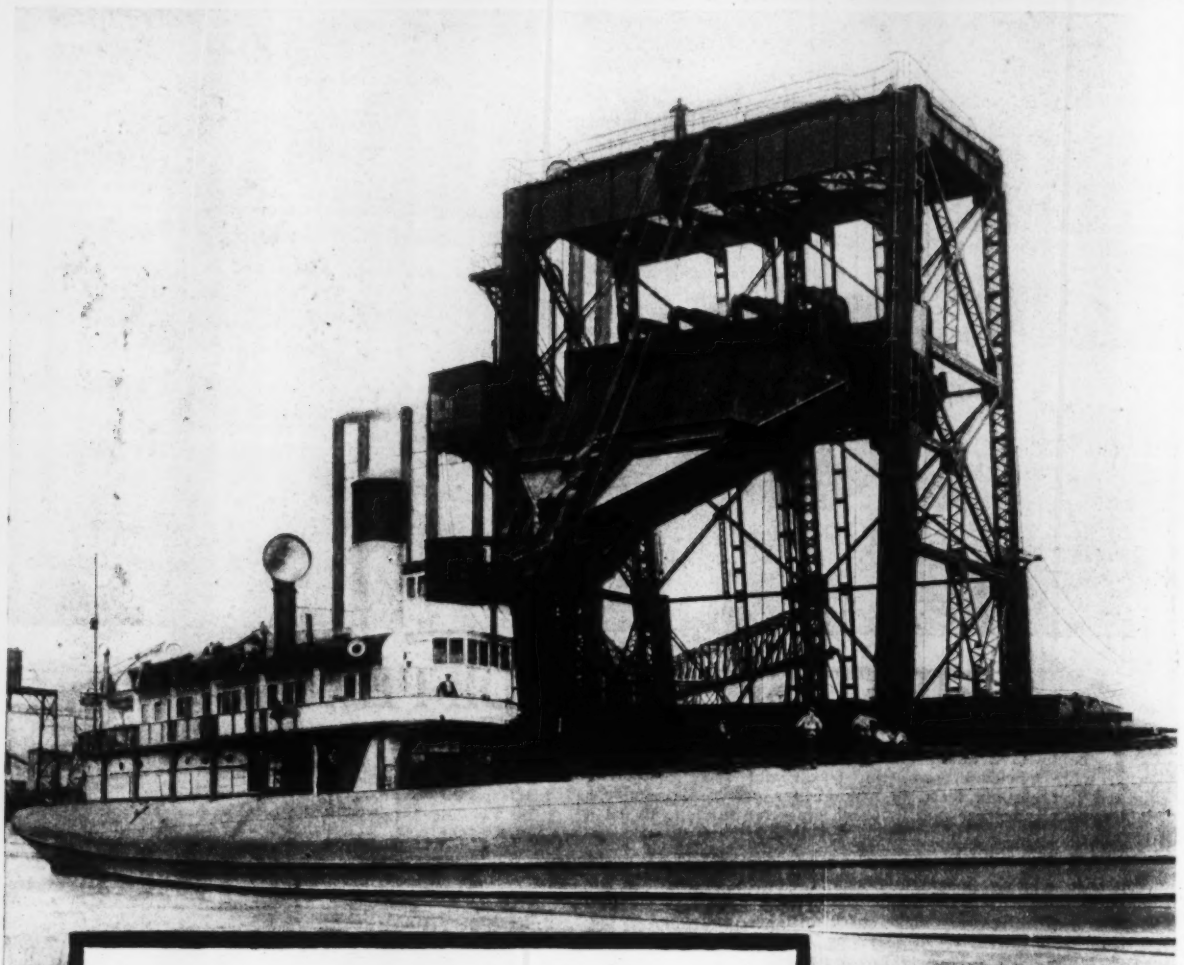


For Every Purpose:

Unloading barges, R.R. cars, reclaiming from ground storage, excavating, dredging, filling in, transferring. Handle coal, sand, gravel, crushed stone, coke, ashes, chemicals, lime, fertilizers, earth, ores, and similar materials. Haiss buckets are built of cast steel, steel plate, bronze bushings, and steel flat link side chains. Used by the largest corporations and the Federal Government. Write for Booklet No. 719.

The Geo. Haiss Mfg. Co., Inc.
140th St. and Rider Ave., New York City

LOCOMOTIVE CRANES
CLAM SHELL BUCKETS - SHIPBUILDING CRANES
CAR DUMPERS PILE DRIVERS
THE McMYLER INTERSTATE CO.
CLEVELAND OHIO



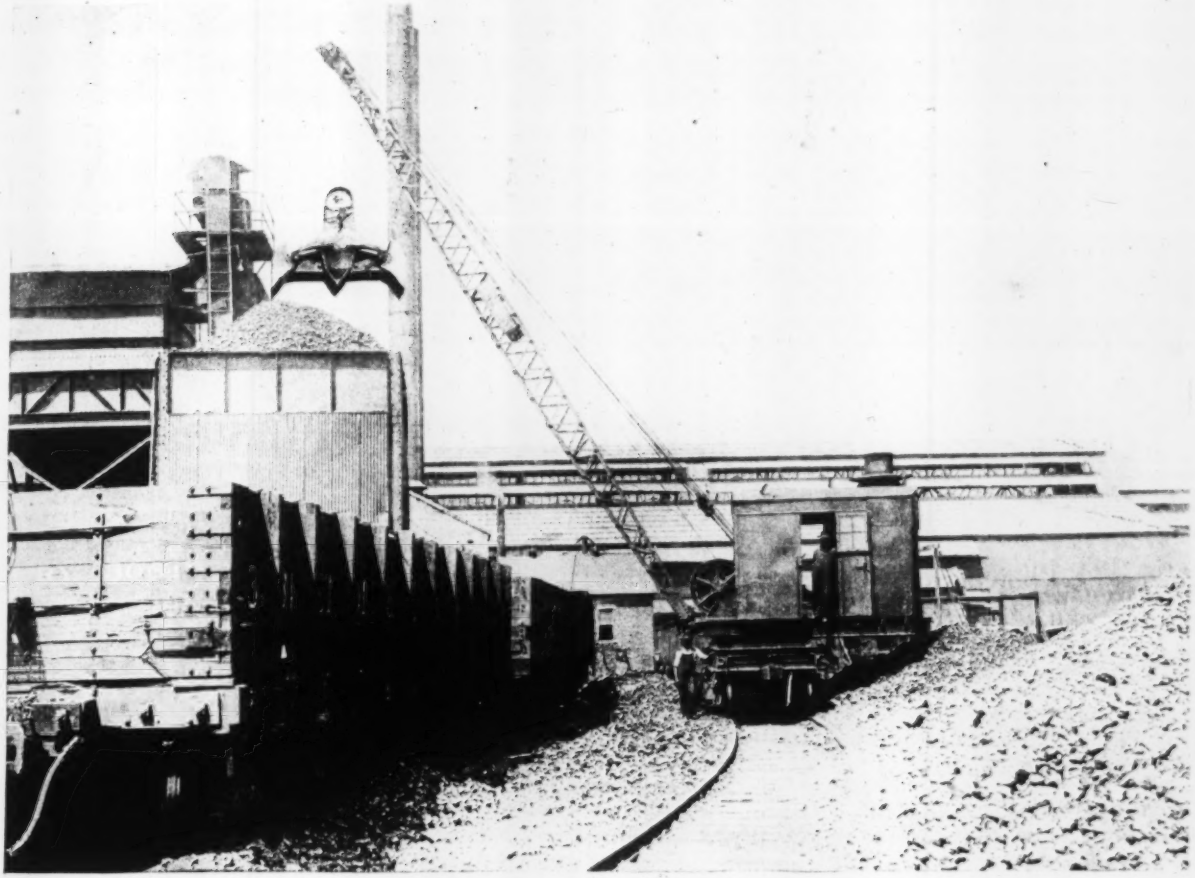
A Picture for Crane Buyers

At first glance you may not see the connection between this big car dumper and the small standard locomotive crane. But when you come to purchase a crane—and remember that behind it are the brains and skill and facilities that built the *above*—you can readily see that you can invest with confidence. We build cranes of all sizes and all types. At it for years. That is why you can depend upon McMyler Interstate Products. Write for Catalog.

The McMyler Interstate Company
Cleveland, Ohio

BRANCH OFFICES: New York City, 1756 Hudson Terminal Bldg.; Chicago, Ill., 812 Edison Bldg.; Seattle, Wash., Hoge Bldg.; Denver, Colo., 18th and Wazee Sts.; San Francisco, Calif., 407 Merchants' Exchange Bldg.; New Orleans, La., Howard St.; Birmingham, Ala., Brown-Marx Bldg.

CDIO



Are you interested in handling costs?

If you have bulk or heavy material to handle around your plant or in the yard, you are, no doubt, interested in equipment which will save you time and money on this work. Brownhoist locomotive cranes are playing an important part in cutting handling costs for many companies handling materials which are similar to yours.

The great flexibility of a Brownhoist locomotive crane enables it to fit into almost every kind of a handling job. The crane, shown above, is handling coal from cars into an overhead coal bin. This is only one of the many jobs it is doing at this plant. Many cars are switched each day and a good deal of hook work is handled in addition to this bucket work.

We have just completed our new catalog K on locomotive cranes. This book gives some very interesting illustrations and shows Brownhoist cranes on various kinds of work. We will be glad to send you a copy on request.

BROWNHOIST

Products Include:

Locomotive Cranes
Grab Buckets
Drag-Line Buckets
Electric Hoists
Tramrails and Trolleys
Overhead Tr. Cranes
Pillar and Jib Cranes
Heavy Dock Machinery
Suspended Concrete Bins

Write for Catalogs

The Brown Hoisting Machinery Company

40 Years in Crane Business **Cleveland, Ohio, U. S. A.**

Engineers and Manufacturers of Heavy Dock Machinery, Bridge Cranes, etc., as well as smaller Cranes and Hoists

Branch Offices in New York, Pittsburgh, Chicago and San Francisco
European Rep., H. E. Hayes, 12 Rue de Phalsbourg, Paris

OSGOOD 120

LARGE OR SMALL—
You can't make a better shovel investment

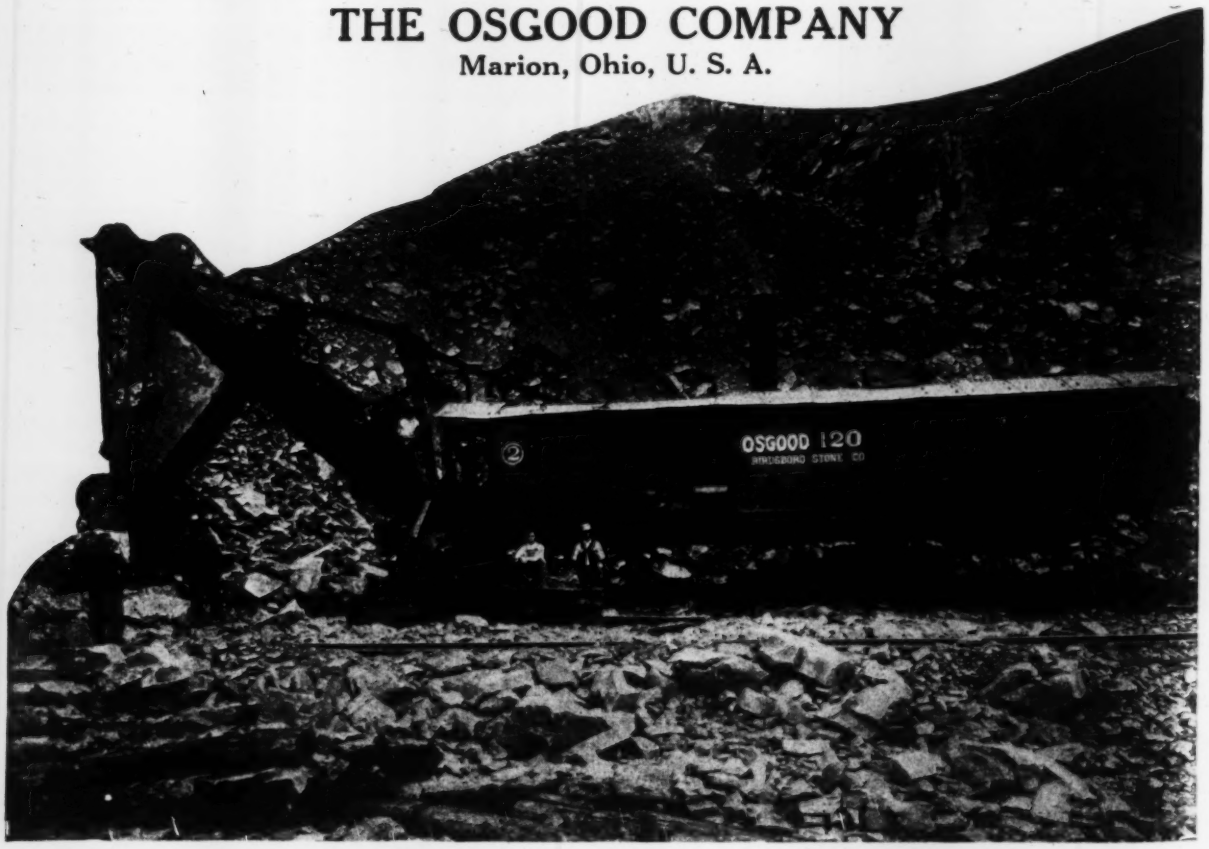
Whether it is to meet the requirements of quarry work, where the largest crushers are used, for handling ores where large capacity is required, for excavating shale, etc., without blasting or for the general every-day use on contracting work. You buy the greatest amount of shovel satisfaction in every way when you buy an OSGOOD—large or small.

We willingly help you solve your excavating problem in a way that will materially reduce yardage cost.

Revolving and Railroad types ¾ to 6 cu. yds.

Write us today for Catalog A-1

THE OSGOOD COMPANY
Marion, Ohio, U. S. A.



Reduce Expenses

WHENEVER you permit a crew of men to handle material that could be better handled by machinery, you are robbing yourself of profits that should be yours.

Link-Belt labor saving elevating and conveying machinery has increased the efficiency of manufacturing plants in nearly every line of industry.

The equipment shown herewith represents only a few of the various types of Link-Belt elevators and conveyors that make up the Link-Belt line. Write us about your individual problems. Let our engineers tell you how to save time and money in the handling of materials.

Catalogs and full particulars on request.

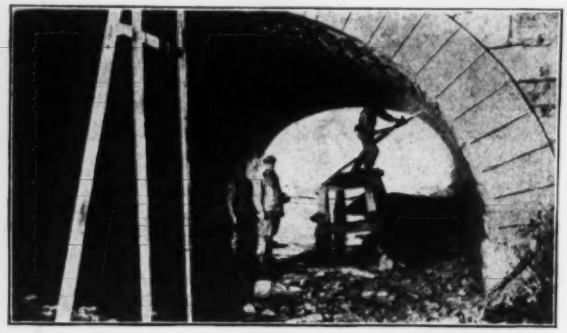
1. Belt Conveyor handling coal. Also used for many other kinds of material.
2. Link-Belt Electric Hoist handling coal and ashes. Can be used for any hoisting service.
3. Link-Belt Barrel Conveyor. We also furnish other types for handling all products.
4. Peck Carrier for handling coal, ashes, etc.
5. Link-Belt Wagon Loader, loads coal, sand, stone, gravel, etc. A ton a minute.

LINK-BELT COMPANY
PHILADELPHIA CHICAGO INDIANAPOLIS
OFFICES IN PRINCIPAL CITIES

LINK-BELT
ELEVATING AND CONVEYING EQUIPMENT

CEMENT-GUN
TRADE MARK

Gunite Means Economy



THESE photographs show the work being done by the Pennsylvania State Highway Department in reconstructing the old arches near Clark's Ferry, Pa., described in *Engineering News-Record* of October 21, 1920.

The Engineers of the Highway Department report that the entire cost of a "Cement-Gun" and compressor was saved on this job alone over the estimate for repairing by ordinary methods.

We have many interesting facts on record regarding the performances of the "Cement-Gun." Let us show you the economy of its use. Write.

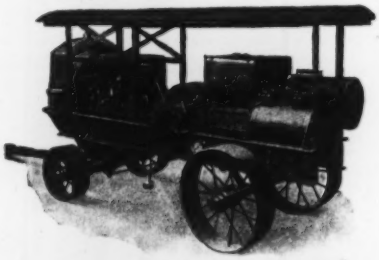
CEMENT-GUN CO., INC.

Cornwells, Bucks Co.

PENNSYLVANIA

New York Office, 30 Church St.; Chicago Office, 904 Chamber of Commerce Bldg.; Pittsburgh Office, 211 Fulton Bldg.; Los Angeles Office, Citizens' National Bank Bldg.; Spokane Office, 612 Mohawk Block; Richmond Office, 812 Virginia Railway and Power Bldg.; General Supply Co., Ltd., Winnipeg and Ottawa, Canada, 2; Kansas City Office, 204 R. A. Long Bldg.

Agencies in all principal foreign countries



"We sell Traylor Contractor Type Compressors."

THE faster trucks can be loaded the more trips they can make per hour. The Austin Wagon Loader keeps them moving at full efficiency. Operated by one man, it loads 6 cubic yards of material in 6 minutes at an average cost of 7½ cents per yard. To do the job by hand would require 20 minutes of 8 men's time. And the approximate cost would be 45 cents per yard.

This loader is the result of 40 years' experience. Send for Wagon Loader booklet **U3.**

Austin Machinery Corporation

(F. C. AUSTIN CONSOLIDATION)

Chicago Office: Railway Exchange Building
New York Office: 30 Church Street
Atlanta Office: 10 W. Harris Street

SUCH clay as you see here will test the strength and staying qualities of the sturdiest shovel. The teeth-marks tell their own story—indicating the heavy, stubborn material so common in clay pits.

The "Marion" 36 is built to withstand just such service. Its strong manganese dipper is capable of "biting" into the toughest clay or the hardest shale. Powerful engines and ample boiler capacity insure steady performance even when working under severe and adverse conditions.

Steady output will be assured at your plant if a "Marion" does the digging. Your order should be placed now for early spring delivery.

THE **Marion** STEAM SHOVEL CO.

Established 1884 Marion, Ohio

New York Chicago Atlanta San Francisco

Boise, Idaho, - Clyde Equipment Co.
Billings, Mont., F. B. Connelly Co.
Dallas, - F. B. Wright, Bush Bldg.
Denver, - - - H. W. Moore & Co.
Detroit, W. H. Anderson T. & S. Co.
Vancouver, - - - - - - - - - - - Vancouver Machinery Depot, Ltd.
Montreal, Toronto, - - - - - - - - - - - - F. H. Hopkins & Co., Ltd.
Philadelphia, H. L. Cox, 13 & Cherry
Pittsburgh, - - - J. W. Patterson
Portland, - - Clyde Equipment Co.
Salt Lake City, H. W. Moore & Co.
Seattle, - - Clyde Equipment Co.

EVERYWHERE RELIABLE
THE Marion STEAM SHOVEL CO.
ESTABLISHED 1884

A Bucket for YOUR Hoist

No matter what your present hoisting equipment may be—overhead crane, stiff-leg derrick, monorail, cableway, locomotive or traction crane—we are prepared to furnish *quickly* a Blaw Bucket which is exactly suited to your requirements.

Blaw Buckets are manufactured in all sizes and in many standard types—Four Line; Dredger; Foundry; Power-Wheel; Bulldog; Dreadnaught; Speedster and Single Line—for every kind of rehandling or excavating on which a grab bucket can be used at all.

They are economical in price, operation and maintenance.

All this—with an engineering service which assures you getting exactly the bucket which you need.

Remember *Blaw Buckets* when in the market for rehandling equipment—and write us.

NOTE—The following products are built and trade-marked by Blaw-Knox Company: Steel Forms for Concrete Construction—Clamshell Buckets—Fabricated Steel Specialties—Water Cooled Appliances for High Temperature Furnaces—Pressed, Riveted and Welded Plate Work—Standardized Sectional Steel Buildings

BLAW-KNOX COMPANY

PITTSBURGH, PA.
601 Farmers Bank Bldg.

New York-Boston-Chicago-Detroit
Baltimore-Birmingham-San Francisco

BLAW-KNOX

Travelling Forms for Tunnels

Allow Un-interrupted Traffic

Blaw Travelling Tunnel Forms are designed and built by engineers experienced in every phase of tunnel construction.

This knowledge of construction requirements was applied to the building of a form for the Monongahela Southern R. R. Tunnel at Clairton, Pa.—a collapsible, travelling form which permitted continuous concreting work without interfering with traffic schedules.

The picture illustrates this form, and depicts an engineering triumph in tunnel construction which is in conformity with the high standard of engineering service which is infused into all Blaw-Knox Products.

Blaw-Knox Engineering Service is at your disposal on concrete construction projects of all kinds. Write us.

NOTE—The following products are built and trade-marked by Blaw-Knox Company: Steel Forms for Concrete Construction—Clamshell Buckets—Fabricated Steel Specialties—Water Cooled Appliances for High Temperature Furnaces—Pressed, Riveted and Welded Plate Work—Standardized Sectional Steel Buildings

BLAW KNOX

PITTSBURGH, PA.
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BLAW-KNOX COMPANY

New York-Boston-Chicago-Detroit
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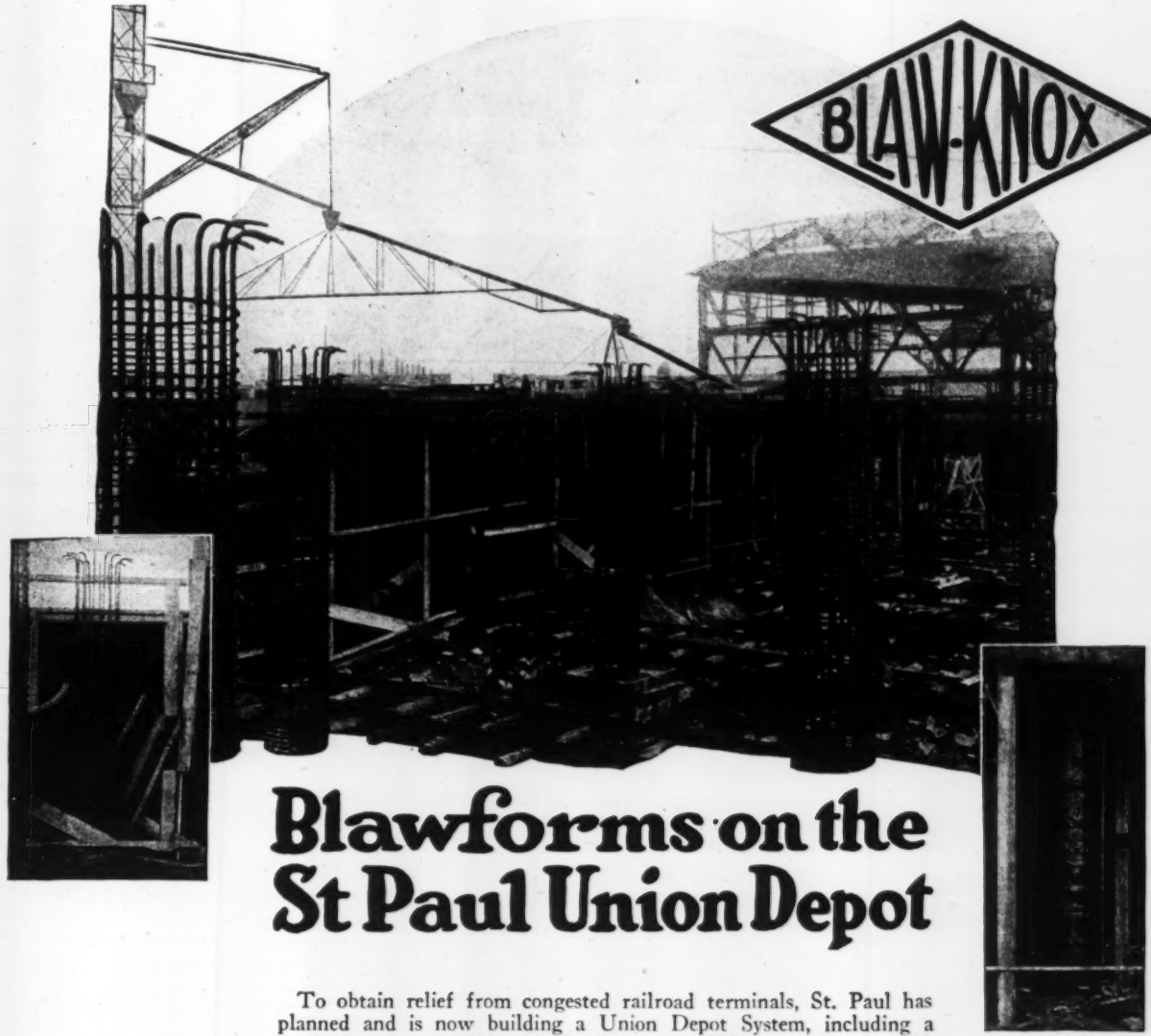


Blawforms on the St Paul Union Depot

To obtain relief from congested railroad terminals, St. Paul has planned and is now building a Union Depot System, including a track elevation of 19 feet, built of concrete, 270 feet wide and 1000 feet long—serving the nine big roads operating through St. Paul—for which Blaw-Knox Company has furnished and is superintending the erection and operation of Blaw Column Molds for building the supporting columns, and a specially designed travelling Blawform for casting the concrete floor slab.

The St. Paul track elevation is a proof of Blaw-Knox Engineering Service—our engineers are ready to render their services on construction projects of any kind.

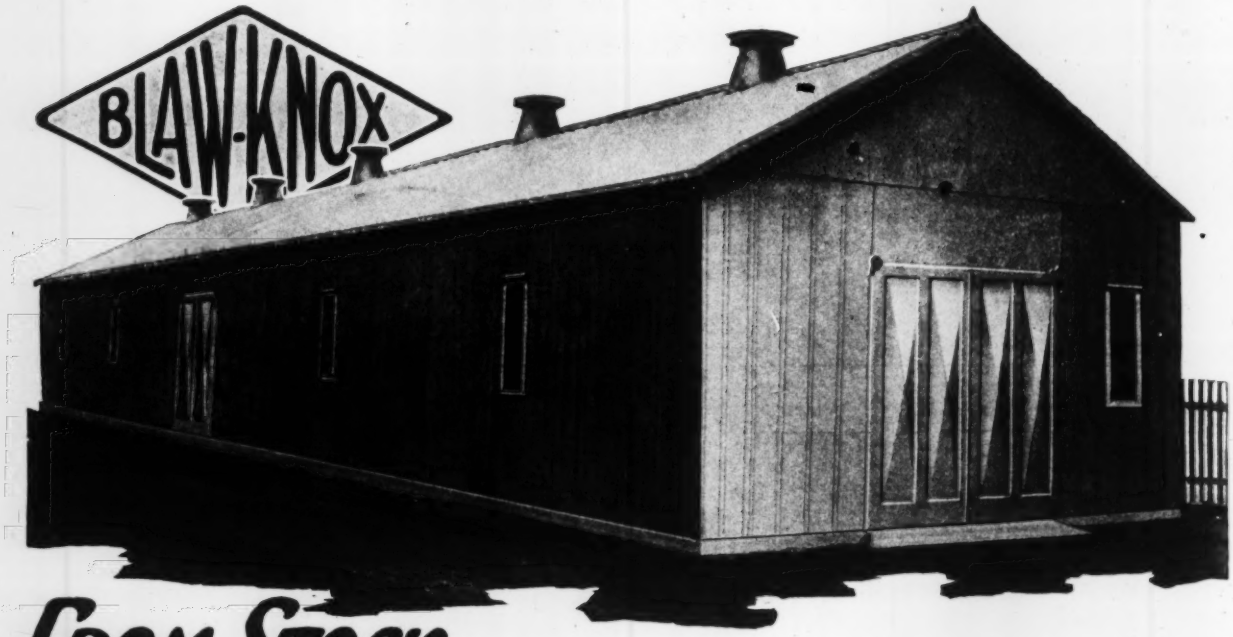
Send us blue-prints or a detailed description of any job you have in mind, or ask for one of our men to come and investigate it—we will save you money.

Note — These products are built and trade-marked by Blaw-Knox Company: Steel Forms for Concrete Construction—Clamshell Buckets—Fabricated Steel Specialties—Water Cooled Appliances for High Temperature Furnaces —Pressed, Riveted and Welded Plate Work.

BLAW-KNOX COMPANY

PITTSBURGH, PA.
601 Farmers Bank Bldg.

New York-Boston-Chicago-Detroit
Baltimore - Birmingham - San Francisco



FROM STOCK
A Complete Building in a Single Shipment

Blaw-Knox Prudential Steel Buildings in all widths from 8 to 50 feet, and in any required length.

Standardized, portable construction enables you to erect the building in a very short time with a few men—windows, doors, etc., are interchangeable and can be placed wherever desired.

Blaw-Knox Prudential Steel Buildings are universal in application, filling the needs of industrial plants as light manufacturing buildings or for storage and warehousing—and just as well adapting themselves to service as bunk houses, tool sheds, pump houses, field offices, garages, in fact, every conceivable use.

Weatherproof, fireproof and staunch — ***permanent structures***— not temporary buildings.

Write, wire or phone our nearest office.

NOTE—The following products are built and trade-marked by Blaw-Knox Company: Steel Forms for Concrete Construction—Clamshell Buckets—Fabricated Steel Specialties—Water Cooled Appliances for High Temperature Furnaces—Pressed, Riveted and Welded Plate Work—Standardized Sectional Steel Buildings

BLAW KNOX COMPANY

PITTSBURGH, PA.
601 Farmers Bank Bldg.

New York-Boston-Chicago-Detroit
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ROAD MULTI FOOTE PAVER

TRADE MARK REGISTERED

EVERY FOOTE A MIXER

General Agents

Foote Concrete Machinery Co., 1241 Mich. Ave., Chicago, Ill.
Edward R. Bacon Co., 51 Minna St., San Francisco, Cal.
Wilcox Brothers, Inc., 30 Church St., New York, N. Y.
E. J. McHarg & Co., 3 Crandall St., Binghamton, N. Y.
Made by Foote Co., Inc., Nunda, N. Y.

MANKATO MINN. RED OAK, IOWA

J. S. McLAUGHLIN & SONS
PAVING CONTRACTORS
ADDRESS ALL CORRESPONDENCE TO
GENERAL OFFICES
FIRST NATIONAL BANK BLDG.
MANKATO, MINN.

Nov. 17, 1920

Foote Concrete Machinery Co.
1241 South Michigan Ave.
Chicago, Ill.

Gentlemen:

We have just closed our tenth paving season since we purchased our first Foote Paver and have reviewed the progress of evolution in the manufacture of concrete mixers with great interest to ourselves and think that it may be interesting to your concern to hear from us, therefore, we take this occasion to advise you that the season of operations which has just closed has been a pleasure in so far as the actual mixing and placing the concrete base and concrete for reinforced concrete pavements.

We have used Foote mixers during this period because we thought the Foote to be the best end discharge paving mixer.

We are so well pleased with the Multi-Foote Tread that we can't help telling you that the Multi-Foote Tread has caused our troubles in moving over wet, soft and slippery ground to disappear, since our operators have learned to handle the machine they can turn same around in a space but little greater than the length of the machine. Our repairs during 1920 have been negligible.

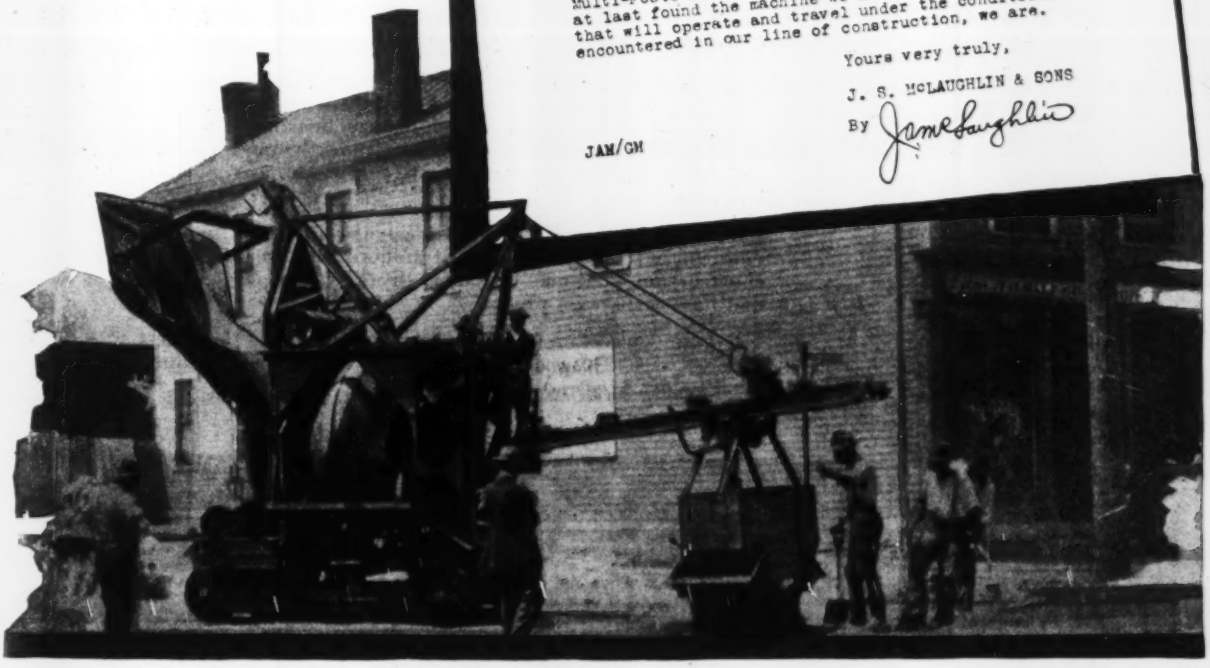
We can't say too much for the new mixer with the Multi-Foote Tread and want you to know that we have at last found the machine we have longed for, one that will operate and travel under the conditions encountered in our line of construction, we are.

Yours very truly,

J. S. McLAUGHLIN & SONS

By Jas McLaughlin

JAM/GM



Rex 7-S Concrete Mixer working on a foundation job. The portability of this machine allows it to be easily moved around on the job—an important time-saving factor

How Rex Mixers Increase Profits

Every dollar cut out of the cost of mixing and pouring concrete is a dollar for the profit side of the ledger. The contractor who makes the most money is the contractor who lays the most concrete at the least cost.

Rex Concrete Mixers and Pavers are enabling hundreds of contractors to make more money through continuous, trouble-free operation, speedy mixing, and long life.

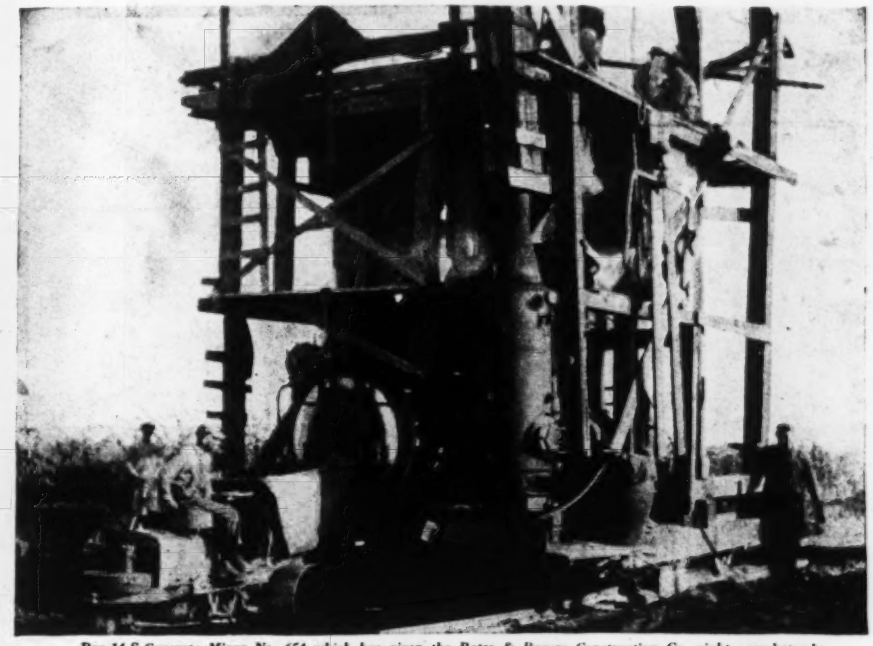
The life of a Rex cast semi-steel mixing drum is easily ten years. The drum rollers and bronze bearings are heat-treated for hardening and there are many examples where they have lasted under continuous service for seven, eight and even more years.

Every other feature of a Rex is designed and built to meet enduringly the requirements of modern building and road-construction methods. That is why Rex Concrete Mixers and Pavers increase profits.

For your pocketbook's sake you should have the latest catalogs describing these machines. They cost nothing. Send today.

REX MIXERS

Rex Chains, Rex Traveling Water Screens
Rex Sprockets, Rex Elevators and Conveyors



Rex 14-S Concrete Mixer No. 654 which has given the Bates & Rogers Construction Co. eight years' steady service at an average yearly repair cost of only $10.34—and still has its original important parts

Eight Years — $10.34 — and Rex Mixer No. 654

In 1912 the Bates & Rogers Construction Company, Chicago, owners of 7 Rex Concrete Mixers, bought a Rex 14-S—machine No. 654—and shipped it into Canada to work on the Grand Trunk Railway extension.

Although this mixer has been operating ever since on important jobs in Canada and the United States it is still in excellent condition.

It still has its cast semi-steel drum—it is rare that a Rex Drum wears out in 10 years—rollers and bronze bearings, and the repairs for the eight years' service total only $82.71, an average of $10.34 a year.

Wherever Rex Mixers are used, contractors are obtaining big yardage and uninterrupted operation at minimum cost. They can do the same for you.

All Rex Pavers and Rex Building Mixers Nos. 7-S, 14-S, 21-S and 28-S are chain driven with all-steel chain—Rex Chabelco Chain.

AND PAVERS

CHAIN BELT COMPANY, MILWAUKEE

Branch Offices and Representatives in Principal Cities in the United States and Abroad

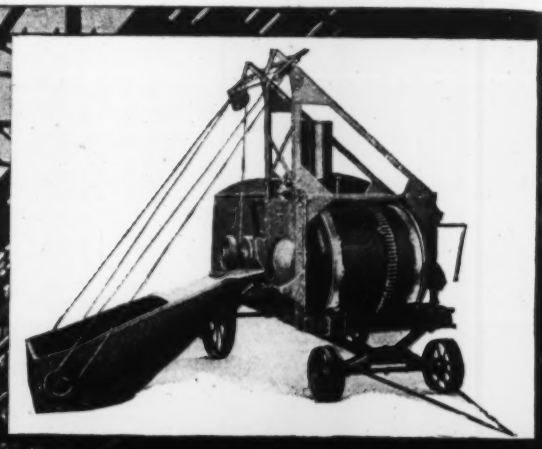
It's Always on Job and Keeps Small Crew Busy

For foundations, sidewalk construction and floor building, Lansing Mixer No. 7 is increasing the profits of contractors everywhere.

It has power side loader and water tank, is a well balanced machine and handles a bag of cement at each batch. It is deservedly popular on small and medium sized jobs where the expense of moving and operating a larger mixer is prohibitive.

Lansing Mixer No. 7 is first choice of contractors because of its wide range of usefulness, low first cost and small expense of maintenance.

It's the right size mixer for contractors interested in making money.

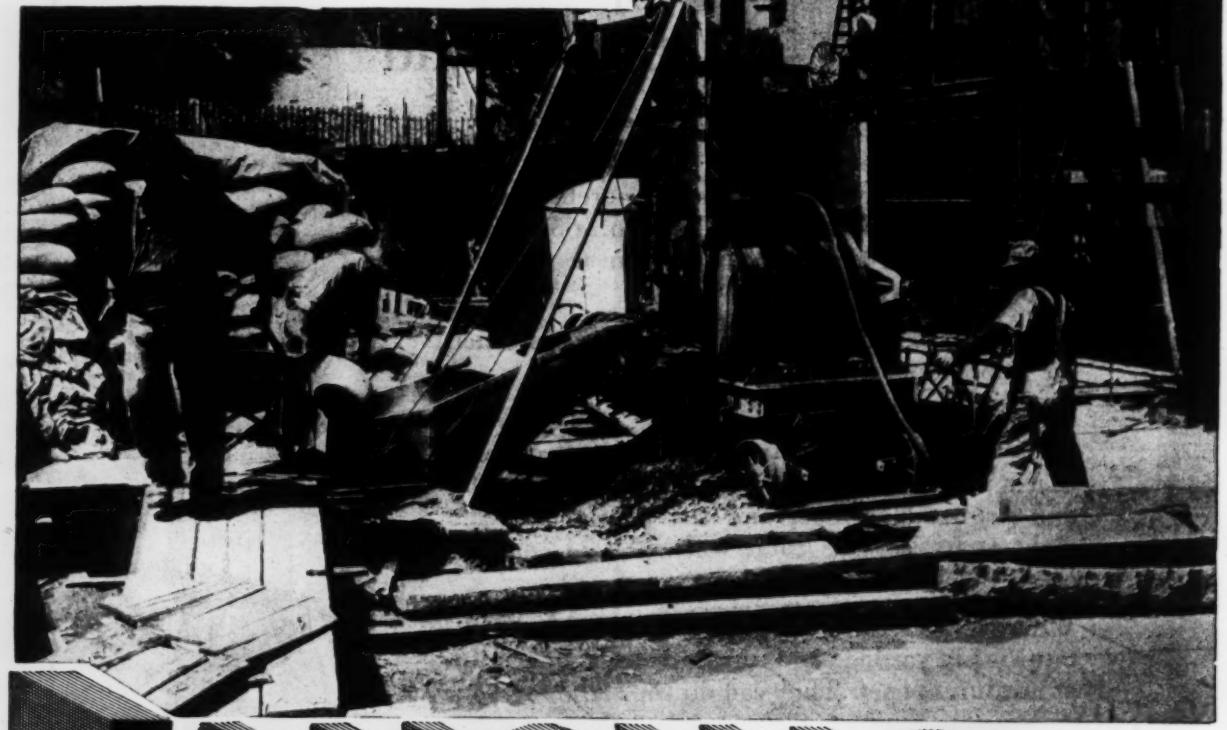


Let us send you complete information about Lansing Mixer No. 7, as well as our line of contractors' equipment. Nearly 40 years of manufacturing experience peculiarly fits us to cooperate with contractors intelligently. Write for our 50-page mixer catalog.

LANSING-COMPANY

26 North Cedar Street Lansing, Mich.

BRANCHES: New York Philadelphia Boston Chicago Minneapolis Detroit Kansas City San Francisco

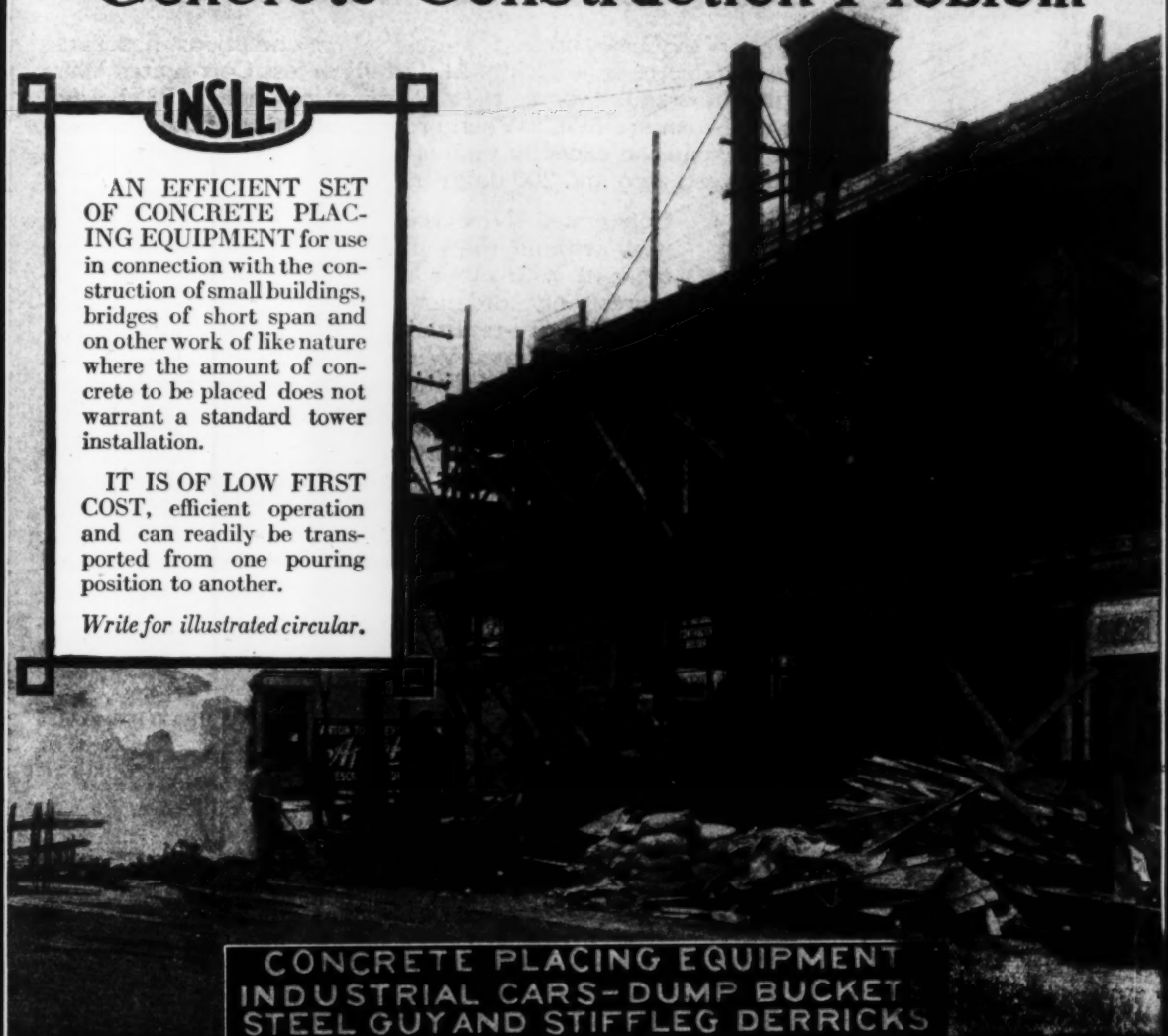


LANSING COMPANY

CONCRETE MIXERS - CONTRACTORS' EQUIPMENT

THE INSLEY MAST HOIST BUCKET PLANT

Solves the small Concrete Construction Problem



INSLEY

AN EFFICIENT SET OF CONCRETE PLACING EQUIPMENT for use in connection with the construction of small buildings, bridges of short span and on other work of like nature where the amount of concrete to be placed does not warrant a standard tower installation.

IT IS OF LOW FIRST COST, efficient operation and can readily be transported from one pouring position to another.

Write for illustrated circular.

CONCRETE PLACING EQUIPMENT
INDUSTRIAL CARS-DUMP BUCKET
STEEL GUY AND STIFFLEG DERRICKS

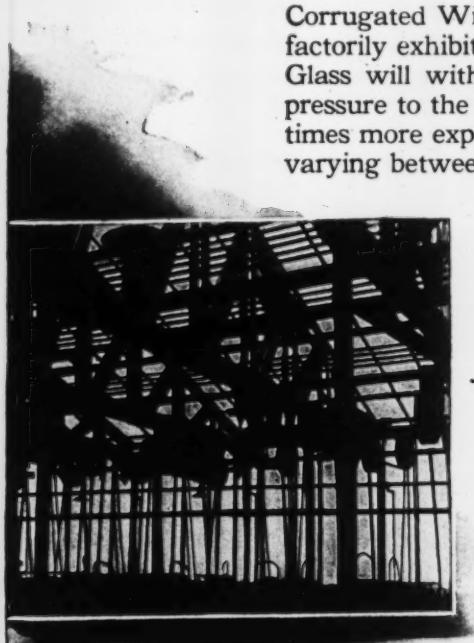
INSLEY MANUFACTURING CO.

Engineers INDIANAPOLIS, INDIANA. Manufacturers

CORRUGATED WIRE GLASS

Light In Every Nook and Corner—Without Shadows

FROM the standpoint of greater efficiency, increased production and decreased possibility of accidents, a well day-lighted industrial building has proved its necessity. That is why executives who are responsible for the erection of such structures always demand "*plenty of light.*" It is to make possible a better day-lighted building that Corrugated Wire Glass was introduced.

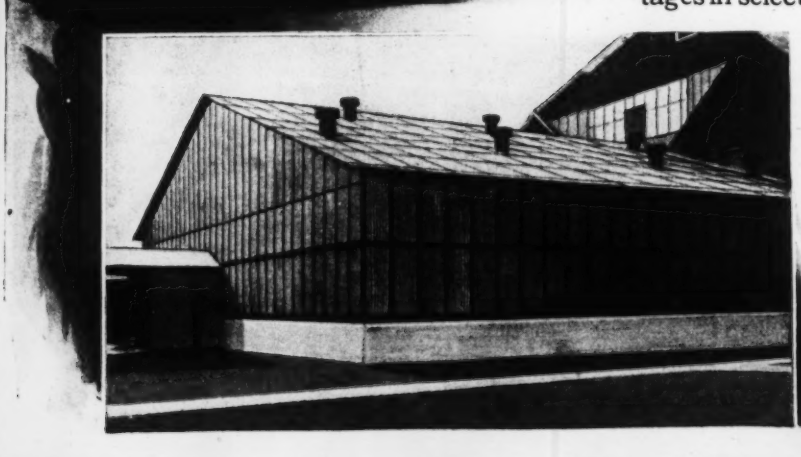


Corrugated Wire Glass, under the most severe conditions, has satisfactorily exhibited its superiority. In a strength test, Corrugated Wire Glass will withstand, over a clear span of 60 inches, 73 pounds pressure to the square foot. When properly installed it has *twenty* times more expansion capacity than is necessary with temperatures varying between zero and 200 degrees.

Corrugated Wire Glass is easily erected. It supports itself without the aid of special roof members, can be used with other corrugated materials and requires only ordinary labor to install it. Glare-diffusing, fire-retarding, self-cleaning and weather-tight Corrugated Wire Glass is suitable for all kinds of side walls, roof and sky light construction.

We maintain a staff of competent engineers who stand ready to work with architects and builders and give them the benefit of their practical knowledge of the best method of adapting Corrugated Wire Glass to different constructions. Our interesting folders go into a more detailed discussion of installation, and the advantages in selecting Corrugated Wire Glass.

Write for them.



Pennsylvania Wire Glass Company
1511 Chestnut Street
Philadelphia, Pa.

CORRUGATED WIRE GLASS

PENNSYLVANIA WIRE GLASS CO. SOLID WIRE GLASS

Kirk Soap Building, Chicago. Geo. A. Fuller Company, Contractor, Chicago.

On Time!

For smooth, true columns—Hydraulic Steel Column Forms. Standardized—quickly erected—rapidly removed—perfect fit—they help to get the job done *on time* and mean a big saving in time and also labor costs.

90% of America's leading building contractors are using Hydraulic Steel Forms.

Forms shipped from stock—leased on an economical basis.

THE HYDRAULIC STEELCRAFT COMPANY
of THE HYDRAULIC STEEL COMPANY
CLEVELAND, OHIO

Manufacturers of Standardized Steel Buildings; Wall, Column, Sewer, Tunnel, House, Arch Pan and Flat Slab Forms; and Column Guards.

Branch Sales Offices:

New York	Chicago	Detroit	San Francisco
Singer Building	Fisher Building	Book Building	Hearst Building
Atlanta	Richmond		St. Louis
Rhodes Building	American Nat. Bank Bldg.		4639 Maryland Ave.

HYDRAULIC

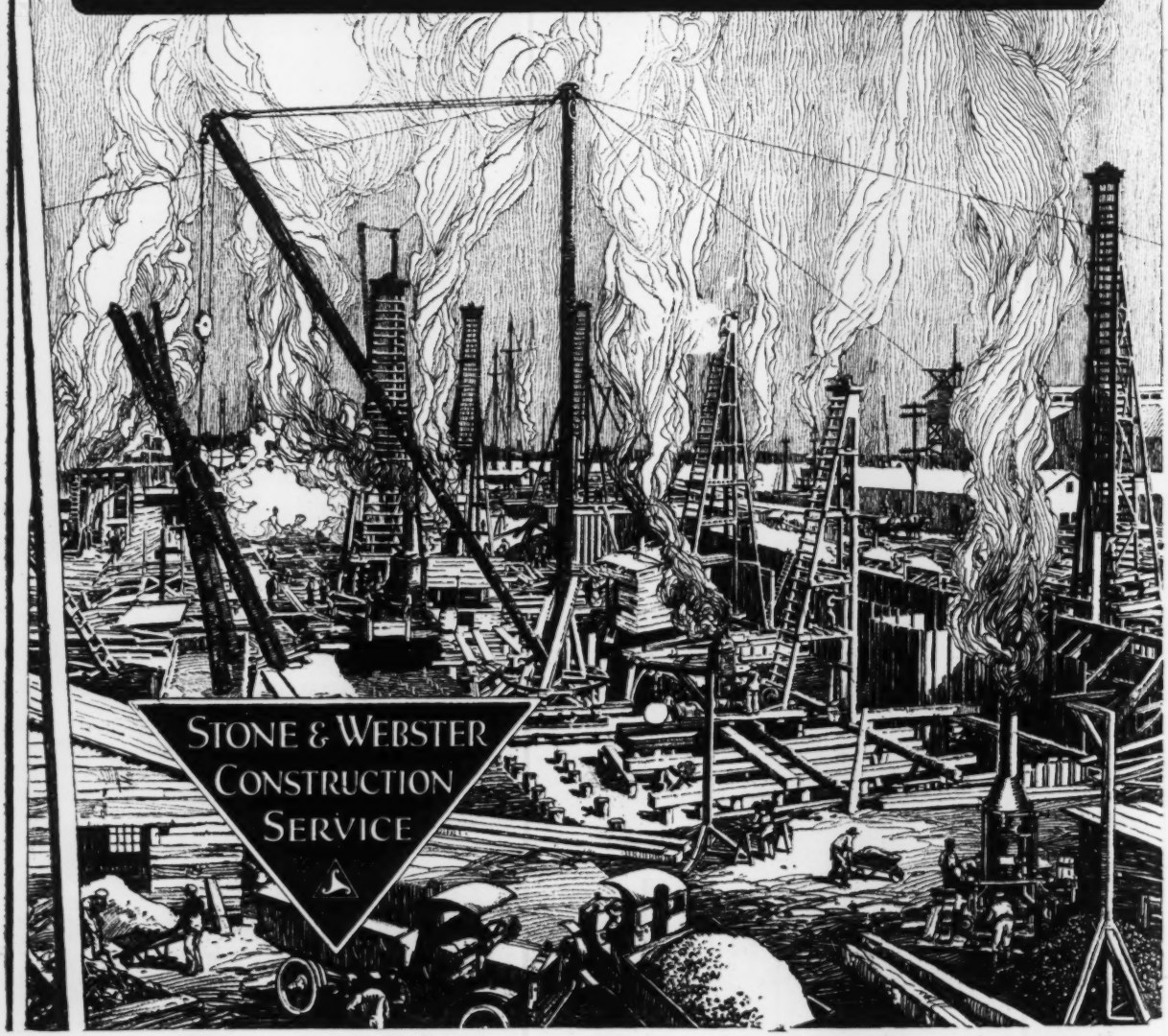
Hydraulic System

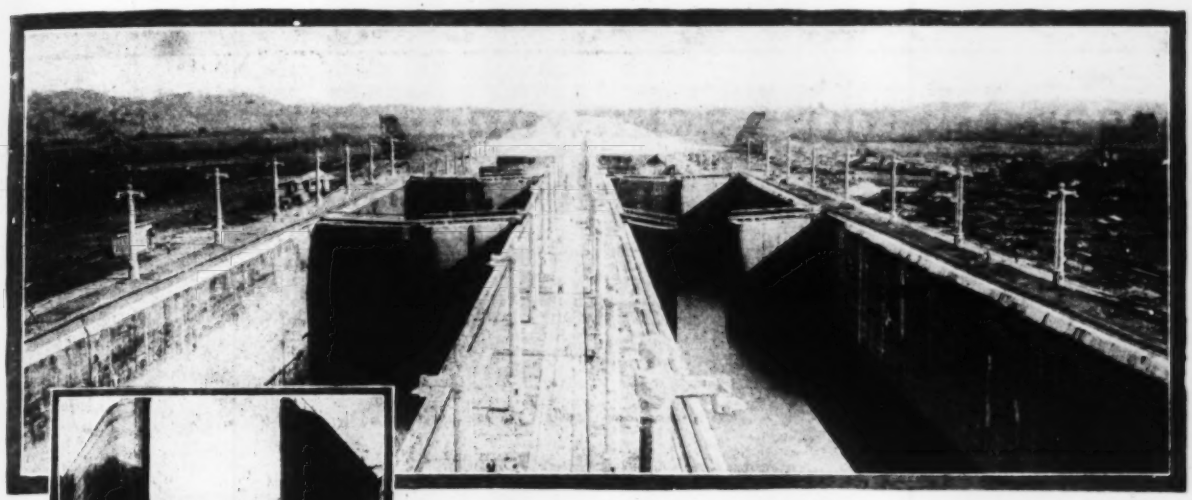
The Industrial Work of Stone & Webster

A SURVEY of the industrial work of Stone & Webster, completed or in progress, shows buildings of brick and steel, stone and reinforced concrete, machine shops and foundries, steel mills, factories, warehouses and chemical works, industrial service buildings, power stations large and small, power distributing systems in towns and cities, water works, roads, railways and sewers, water power developments, gas plants, transmission lines and substations. Our methods are tested and our men are proven. Our experience is valuable from the time you begin to shape your plans, and we work *with* you as well as *for* you until your plant is done.

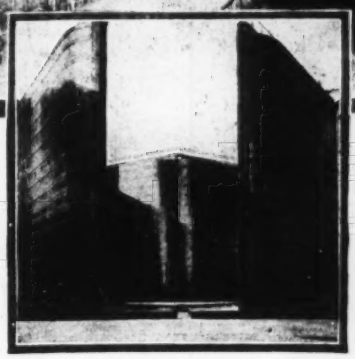
STONE & WEBSTER
INCORPORATED

BOSTON YOUNGSTOWN SAN FRANCISCO NEW YORK CLEVELAND PITTSBURGH DETROIT CHICAGO





Lock Gates at Gatun—Panama Canal
Looking Toward Atlantic Ocean



46 Gates—92 Leaves—60,000 Tons of Steel Work

We Design, Manufacture and Erect

Steel Structures for
Industrial Buildings
Bridges and Girders
Power Plants
Viaducts
Lock Gates
Foundries and Machine Shops
Train Sheds
Warehouses
Crane Runways
Office and Store Buildings
Etc.

McClintic-Marshall

The Worth of a Service

AN efficient organization developed during twenty years of designing, manufacturing, and erecting steel structures, enables McClintic-Marshall to build the largest steel structures in the world. Exactness of design and manufacture, plus carefulness of erection, has been characteristic of this organization since its inception. The facilities of seven large shops, capable of fabricating over 400,000 tons of steel annually, the proven knowledge of skilled workers, and the cumulative experience of capable engineers, all stand ready to assist those who contemplate new construction.

Whether your requirements are large or small, we are prepared to offer you our services.

Write for booklet C 205.

McClintic-Marshall Company

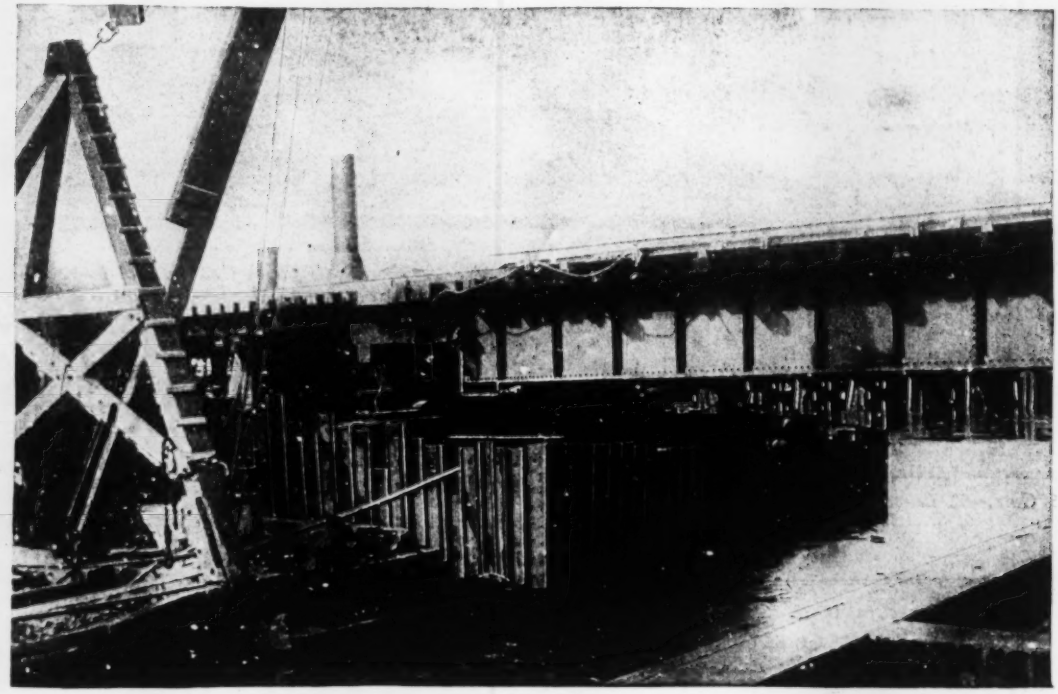
General Offices: 1201 OLIVER BUILDING, PITTSBURGH, PA.

BOSTON, MASS., 68 Devonshire Street
CHICAGO, ILL., 1st National Bank Building
CINCINNATI, OHIO, Union Central Building
CLEVELAND, OHIO, Statler Hotel
DETROIT, MICH., Book Building
NEW YORK CITY, 50 Church Street
PHILADELPHIA, PA., Morris Building
POTTSTOWN, PENNSYLVANIA
SAN FRANCISCO, CAL., New Call Building
SEATTLE, WASH., Coleman Building
SYRACUSE, N. Y., University Building
WASHINGTON, D. C., Munsey Building

Foreign Contract Dept.: 50 Church St., New York City, U. S. A.

McClintic-Marshall
Steel Construction

Second-hand Lackawanna Steel Sheet Piling used in difficult driving conditions



Bridge repairs on the West Jersey and Seashore Division of the Pennsylvania Railroad at Atlantic City have necessitated the driving of a number of Lackawanna Steel Sheet Piling cofferdams.

The one shown for repairing pier of a swing bridge was built with Lackawanna 14-inch Arched-Web sheet piling sections which had seen much previous use. In this particular cofferdam the sheet piling sections had to be driven through the large boulders that were placed above the base of the old piers to give them stability. In spite of its previous use and the severe driving conditions, this Lackawanna Steel Sheet Piling drove to a very even line.

Mr. Amos Rogers, who is in charge of the work for Brann & Stewart, reports that this cofferdam driven through a bed of boulders can be pumped out with two 6-in. pumps in forty minutes. Lackawanna Steel Sheet Piling is perfectly adaptable to so many different conditions that it is a good standby for almost any kind of bridge or building foundation work. The proof of this is in the fact that many contractors carry a stock of Lackawanna Sheet Piling constantly for regular and emergency jobs.

If you have any subsurface work requiring retaining walls, curtain walls, or the exclusion of water during excavation, ask Lackawanna engineers to suggest the most suitable form of steel sheet piling construction.

Lackawanna Steel Company

General Sales Office and Works, Lackawanna, N. Y.

Boston	Chicago	Cincinnati	New York	St. Louis
Buffalo	Cleveland	Detroit	Philadelphia	San Francisco

Licensees for the manufacture of Lackawanna Steel Sheet Piling: For Great Britain and British Colonies in the Eastern Hemisphere: Cargo-Fleet-Iron Co., Ltd., Middlesbrough, England. For France, Italy, Spain, French Colonies and Protectorates, Italian Colonies and Spanish Colonies in the Eastern Hemisphere; Cie. Des Forges & Aciéries de la Marine et d'Homecourt, Paris, France.

Sole Exporter for other countries: Consolidated Steel Corporation, 165 Broadway, New York.

516

GUARANTEE
Every roll or cut sheet of
NATIONAL TRACING CLOTH is
absolutely guaranteed and if
ever found imperfect we will
replace it anywhere at any time.
NATIONAL TRACING CLOTH CO.
Saylesville, Rhode Island

A remarkable guarantee

To all users of tracing cloth we say:

"Every roll or cut sheet of NATIONAL Tracing Cloth is absolutely guaranteed, and if found imperfect in any way, we will replace it anywhere at any time."

To Dealers we add:

"Likewise, if any roll or cut sheet of NATIONAL Tracing Cloth is found unmerchantable because of an imperfection of any kind, we will gladly replace it at our expense."

—NATIONAL TRACING CLOTH CO.

How can we sign such a broad guarantee?

Because of the unequaled satisfaction architects, engineers, technical schools, and many of the world's leading industries have found in the uniform quality of National Tracing Cloth.

Its extraordinarily uniform texture and unexcelled surface, that can be repeatedly erased without harm, permits of the finest and most exacting detail work. National Tracing Cloth is the result of closely guarded standards of production and has no superior. Send for a free sample sheet, and we urge you to give it a thorough test.

NATIONAL TRACING CLOTH CO.

SAYLESVILLE, R. I.

New York Office 72 Leonard Street

OTHER PRODUCTS:— National Vellum Cloth, National Tracing Paper, National Blueprint Cloth, National White Pencil Cloth

National TRACING CLOTH

107-6

-IR-"Jack

Ingersoll-Rand "DDR-13 JACKHAMERS" sinking a 70° incline-shaft at the Replogle Mine of the Wharton Steel Company, Wharton, N. J.

Let us tell you why "DDR-13 JACKHAMERS" were specified.

Ingerso

hamers"

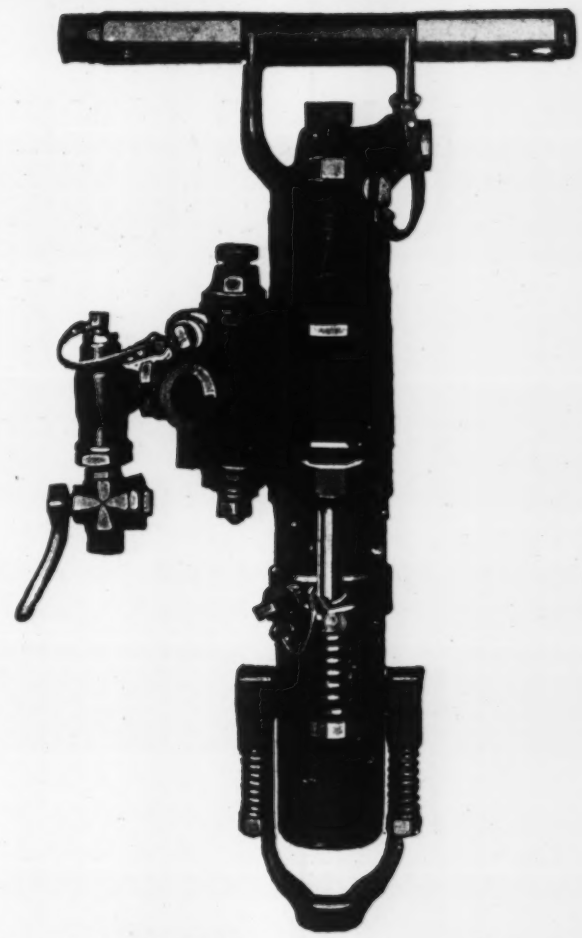
Shaft Sinking

Getting down to facts, you want to lower the cost per foot of sinking your shaft. Hundreds of others have been up against this same problem and found the solution in "DDR-13 JACKHAMERS."

Shaft sinking is their special job. The "DDR-13" is only one of five types and thirteen patterns of "Jackhamers" which range from 21½ to 70 lbs. making "A Jackhamer for every rock drilling condition."

"DDR-13 JACKHAMERS" are rapid drillers. Weighing 70 lbs., they are heavy enough for their strenuous work, yet sufficiently light to be easily handled by one man. They are economical of air and they *stay on the job.*

All steel construction
All bolted construction
Automatic rotation
Leyner water device
"Heartbeat" oiler
"Spool Butterfly" Valve



The DDR-13 Jackhamer is described in Bulletin No. 4142

Ingersoll-Rand Company

General Offices: 11 Broadway, New York

Offices the World over

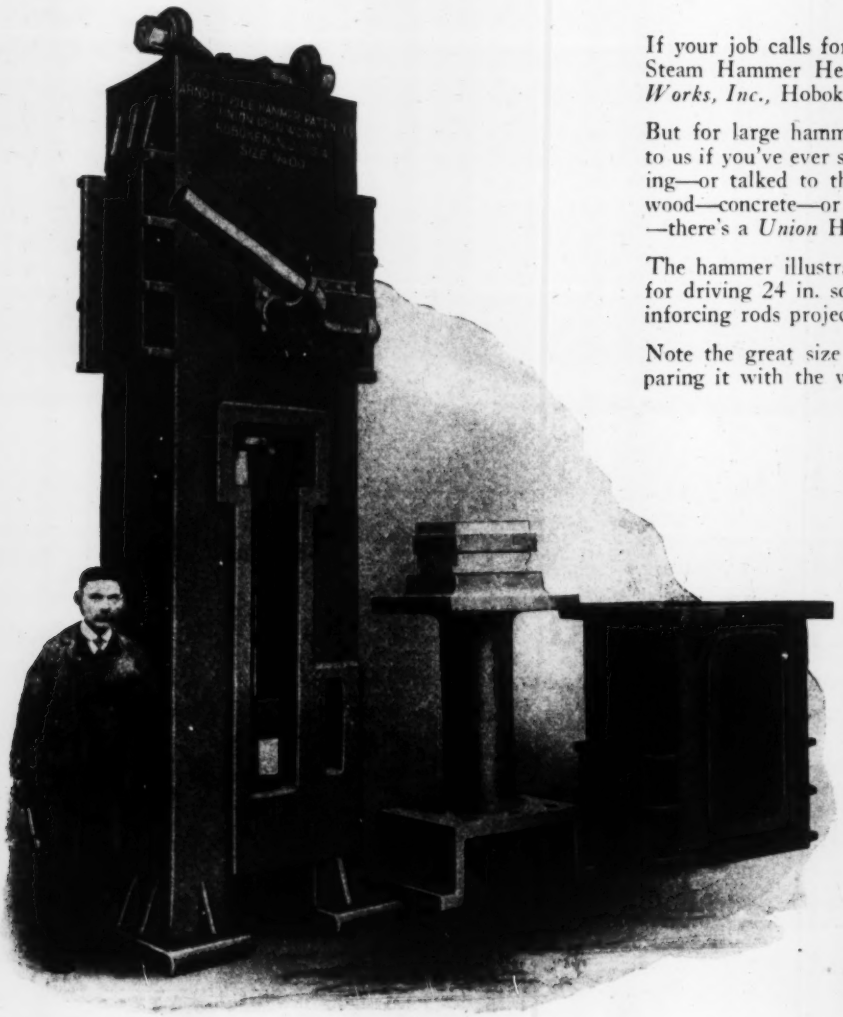
240-JD

11-Rand

UNION NO-OO

The Largest Hammer Made

Strikes 80—55,000 ft.-lb. blows per minute!



If your job calls for a heavy hammer—come to Steam Hammer Headquarters—the *Union Iron Works, Inc.,* Hoboken, N. J.

But for large hammers or small you will come to us if you've ever seen a *Union* Hammer working—or talked to the man who has used one—wood—concrete—or steel piles—small or large—there's a *Union* Hammer for every need.

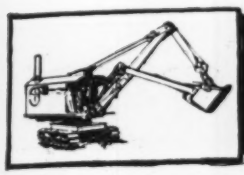
The hammer illustrated has follower and guide for driving 24 in. square concrete piles with reinforcing rods projecting 24 in. from heads.

Note the great size and massive build by comparing it with the workman standing alongside.

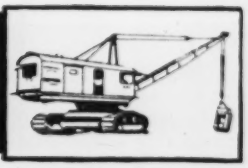
Write for YOUR catalog today.

UNION IRON WORKS

Hoboken, N. J.



BUCYRUS



FOUR BUCYRUS REVOLVING SHOVELS USED IN THE CONSTRUCTION OF THE COLUMBIA RIVER HIGHWAY

The Columbia River Highway—the greatest monument to the road building industry in the United States—is now nearing completion.

Four Bucyrus revolving shovels mounted on caterpillars handled the toughest of the excavation which ran about 75% solid rock. Their performance in overcoming almost insurmountable barriers along this 210 mile mountain road was remarkable and bears out our experience that—*where there is a particularly difficult piece of work to be done you will usually find a Bucyrus doing it.*

Write for our Bulletin CN.

BUCYRUS COMPANY
South Milwaukee, Wis.

New York
New Orleans
Portland, Ore.
Salt Lake City
Chicago
Minneapolis
San Francisco
Cleveland
Denver

284

BROWNING
LOCOMOTIVE CRANES

Making Coal Cost Less Per Ton

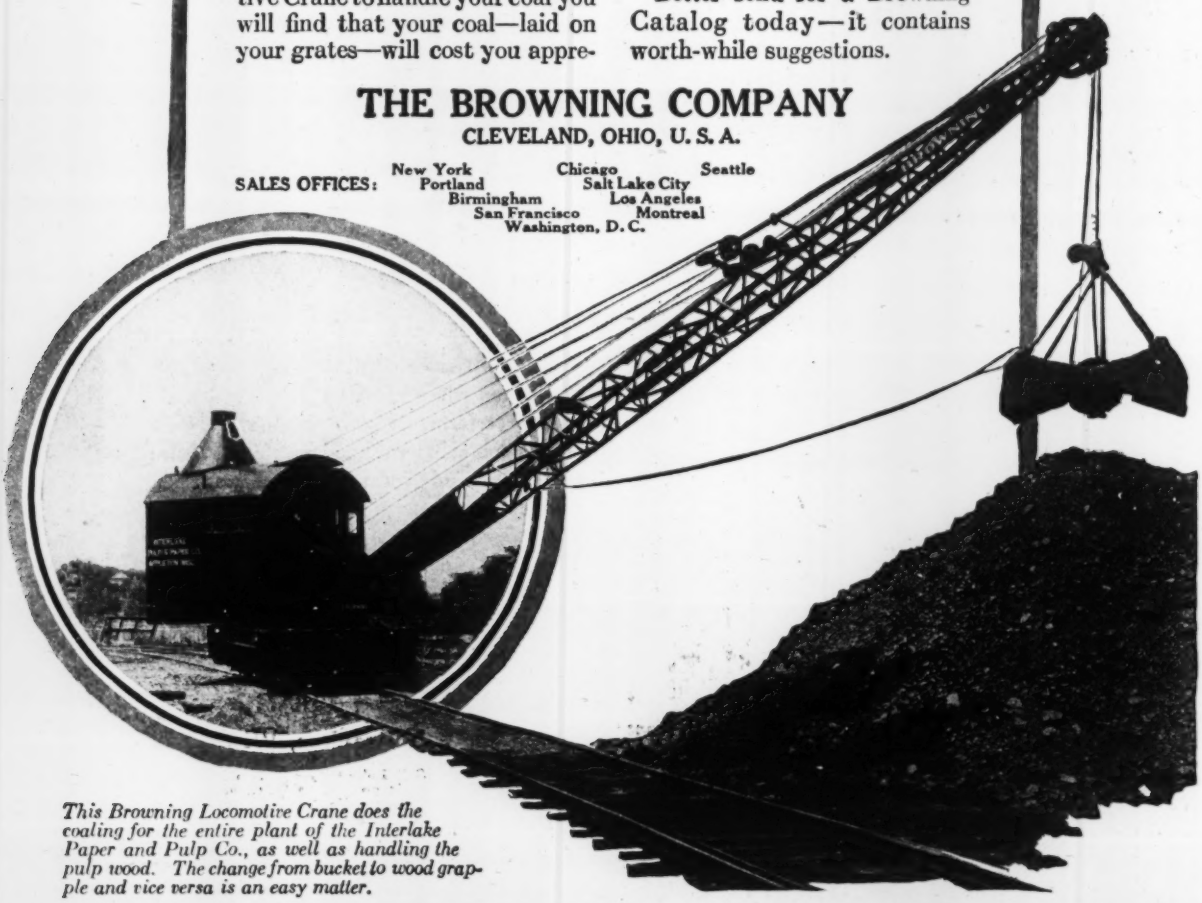
YOUR coal cost is the sum of the following items:—the price you pay the dealer, the freight, the cost of unloading, the cost of putting it in the fire room, the cost of firing it. You can't control the price or the freight, but you do control the cost of handling.

If you use a Browning Locomotive Crane to handle your coal you will find that your coal—laid on your grates—will cost you appreciably less per ton than when handled by hand. And, just for good measure, your "Browning" will do innumerable other jobs around the plant. A "Browning" is just as much of a money-making machine as if it actually printed hundred-dollar bills.

Better send for a Browning Catalog today—it contains worth-while suggestions.

THE BROWNING COMPANY
CLEVELAND, OHIO, U. S. A.

SALES OFFICES: New York, Chicago, Seattle, Portland, Salt Lake City, Birmingham, Los Angeles, San Francisco, Montreal, Washington, D. C.



This Browning Locomotive Crane does the coaling for the entire plant of the Interlake Paper and Pulp Co., as well as handling the pulp wood. The change from bucket to wood grapple and vice versa is an easy matter.

"Suppose a boiler tube bursts—there'll be no shutdown—thanks to my

Angle, Globe or Elbow Pattern

GOLDEN-ANDERSON

Patented Automatic Double-Cushioned Triple Acting and Non-Return Valves"

"All boiler connections between the nozzle and header are equipped with them—I *know* that my boilers are protected against the sudden reversal of steam flow!" Among the MANY features of these valves are the following:

1. They are the only valves that can be tested in service from the boiler room floor. Opening a small hand valve will give complete assurance that the big valves are faithfully on guard against disaster.
2. They automatically cut out a damaged boiler and prevent the back pour of steam from the other boilers through the rupture. That means no shutdown.
3. They automatically equalize the pressure between all boilers and positively prevent steam from entering a cold boiler in which the engineer may be at work.
4. The double Corliss Dash Pot gives absolute relief from pounding, sticking and chattering. It protects the valve and you.
5. The valves can be closed instantly from distant points by steam or electricity.
6. When fitted with our patented safety latch they may also be opened by hand like an ordinary stop valve.

Also made in the triple acting style that works "both ways" causing instant automatic closure of the valves on every boiler in case a steam pipe lets go.

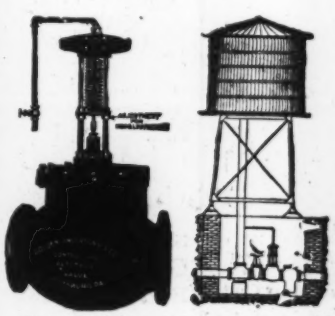
1960 used by U. S. Steel Corporation after making thorough tests of all well known makes.

"Life and Property Insurance Valves" "Always Ready"—"Work Both Ways"

GOLDEN-ANDERSON
Patent Automatic Cushioned Controlling Altitude Valves

Hold an absolutely uniform water level in tanks, reservoirs and standpipes. No floats or fixtures required. Three ways of closing:

1. Automatically by increasing water pressure.
2. By electricity from distant points.
3. By hand like stop valves.



Sizes to 24 in.

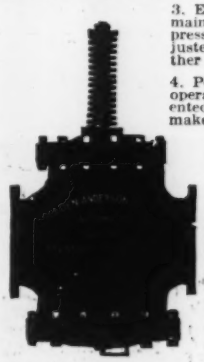
"Hosts of References"

"Every Valve with an Absolute Guarantee"

GOLDEN-ANDERSON
Patent Cushioned Water Pressure Regulating Valves

1. Insure perfect control of reduced water pressure, regardless of fluctuations in the initial pressure.
2. Contain no small water passages or complications. No danger of clogging.
3. Easily adjusted to maintain the desired pressure and stay adjusted without further attention.
4. Positively safe in operation. The patented safety piston makes the accidental equalization of high pressure side impossible.
5. Cushioned by water and air.
6. Can be operated electrically from distant points.

Sizes to 24 inches.



GOLDEN-ANDERSON
Patent Cushioned Electric Water Service Valves

1. Give instant control of the water distribution from the pumping plant in case of fire or other emergency.
2. Can be opened or closed by electricity by closing a small switch for a few seconds only. Thus no current is wasted.
3. Can be provided with either D. C. or A. C. solenoid as circuits require.
4. Cushioned in opening and closing both water and air. Positively operate without water hammer, surging, sticking or other trouble.
5. Can be closed by hand like any ordinary valve.

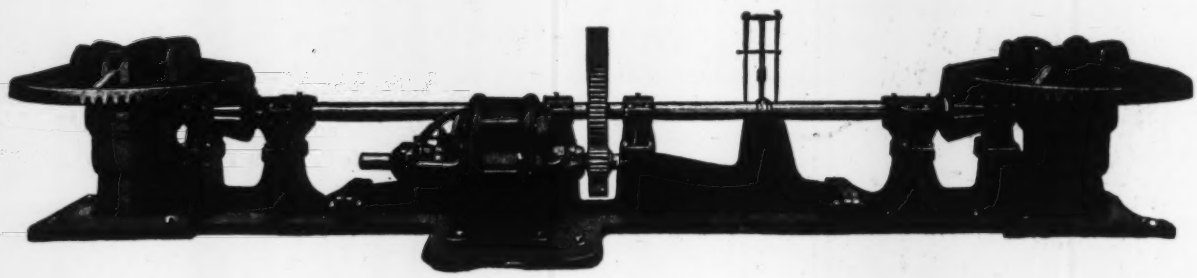
GOLDEN-ANDERSON VALVE SPECIALTY COMPANY

1202 Fulton Bldg. ***Water and Steam Specialties*** **Pittsburgh, Penna.**

COFFIN VALVE COMPANY,

Makers of the Largest Sluice and Gate Valves in America.

A Heavy Twin Gate Hoist Electrically Driven



To operate
16x20 ft. Structural Steel Head Gate

Two Stems
Total Load Lifted 31 Tons

We make
a specialty of
Heavy Gate Hoists

Check Valves
Flap Valves
Foot Valves
Sewer Gates

Office and Works Neponset Suburb of

BOSTON, MASS.

Sluice Gates
Gate Valves
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Fire Hydrants

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New York City: C. W. Bergen & Co., 256 Broadway.
Cleveland, Ohio: Tomlinson Steam Specialty Co., 1597 St. Clair Ave.
Philadelphia, Pa.: DeHuff & Hopkins, Morris Building.
San Francisco, Cal.: Theo. F. Dredge, Monadnock Building.

"What's the Idea of a Ham on a Hook?"

"Well, Chief, we wanted to get up an advertisement on pump foundations (or rather the uselessness of a foundation); and a Ham on a Hook and a foundation are divorced entirely—absolutely no connection. A ham just hangs. It illustrates concretely a salient feature of our pump."

A Pulsometer needs no foundation; hung from a beam, slapped to a wall, or rigged to anything, any place, it is ready for work, and will pump to full capacity. Portable, too, because it is light and can be hauled from job to job.

Economical? Unusually so; because it is a condensing pump and gets double duty out of steam, thus cutting fuel costs half. OR, run it on exhaust steam at no cost.

Continuous operation? Yes, and without attention. Requires no adjustment—cams, rods, pistons, glands, stuffing boxes, and the usually troublesome mechanisms are eliminated.

Oil is unknown to a Pulsometer. No friction is produced at any point during operation, therefore lubrication is unnecessary.

Matter up to 40% solid slides through a Pulsometer as easily as H_2O.

Investigate the Pulsometer for any pumping job if you wish to save time, men and money.

PULSOMETER STEAM PUMP

PULSOMETER STEAM PUMP CO.

Executive Office: 225 West 42nd Street, New York, N. Y.

Agencies in Following Cities:

Henry H. Meyer Company,
110 S. Howard St.....BALTIMORE
Waldo Bros. & Bond Co.,
181 Congress St.....BOSTON
Erwin & Co.,
3734 Cottage Grove Ave.....CHICAGO
Queen City Supply Co.
S. W. Cor. Elm & Pearl Sts.....CINCINNATI
Beckwith Machinery Co.,
1500-02 Lakeside Ave.....CLEVELAND
J. L. Welborn.....HATTIESBURG, MISS.

H. A. Paine, 119 Main St.....HOUSTON, TEX.
Miller Supply Co.....HUNTINGTON, W. VA.
Harron, Rickard & McCone,
225 S. San Pedro St.....LOS ANGELES, CAL.
Hunter Machinery Co.,
208 Wells St.....MILWAUKEE
Wm. H. Ziegler Co.,
423 S. Fifth St.....MINNEAPOLIS
Turner Supply Co.....MOBILE, ALA.
F. H. Hopkins Company.....MONTREAL, CAN.
Woodward, Wight & Co., Ltd.....NEW ORLEANS

Berow Machinery Co.
220 West 42nd St.....NEW YORK CITY
Edelen & Co.,
235 Comm'l Trust Bldg.....PHILADELPHIA
Beckwith Machinery Co.,
108 Parkway, N. S.....PITTSBURGH, PA.
Harron, Rickard & McCone,
139 Townsend St.....SAN FRANCISCO
J. A. Manion, Henry Bldg.....SEATTLE
W. L. Sullivan.....TULSA, OKLA.
Kelly Powell Limited.....WINNIPEG, CANADA

Cameron Pumps are the result of years of experience which have produced a highly developed centrifugal pump of rugged construction, designed in accordance with the most modern engineering theory and practice.

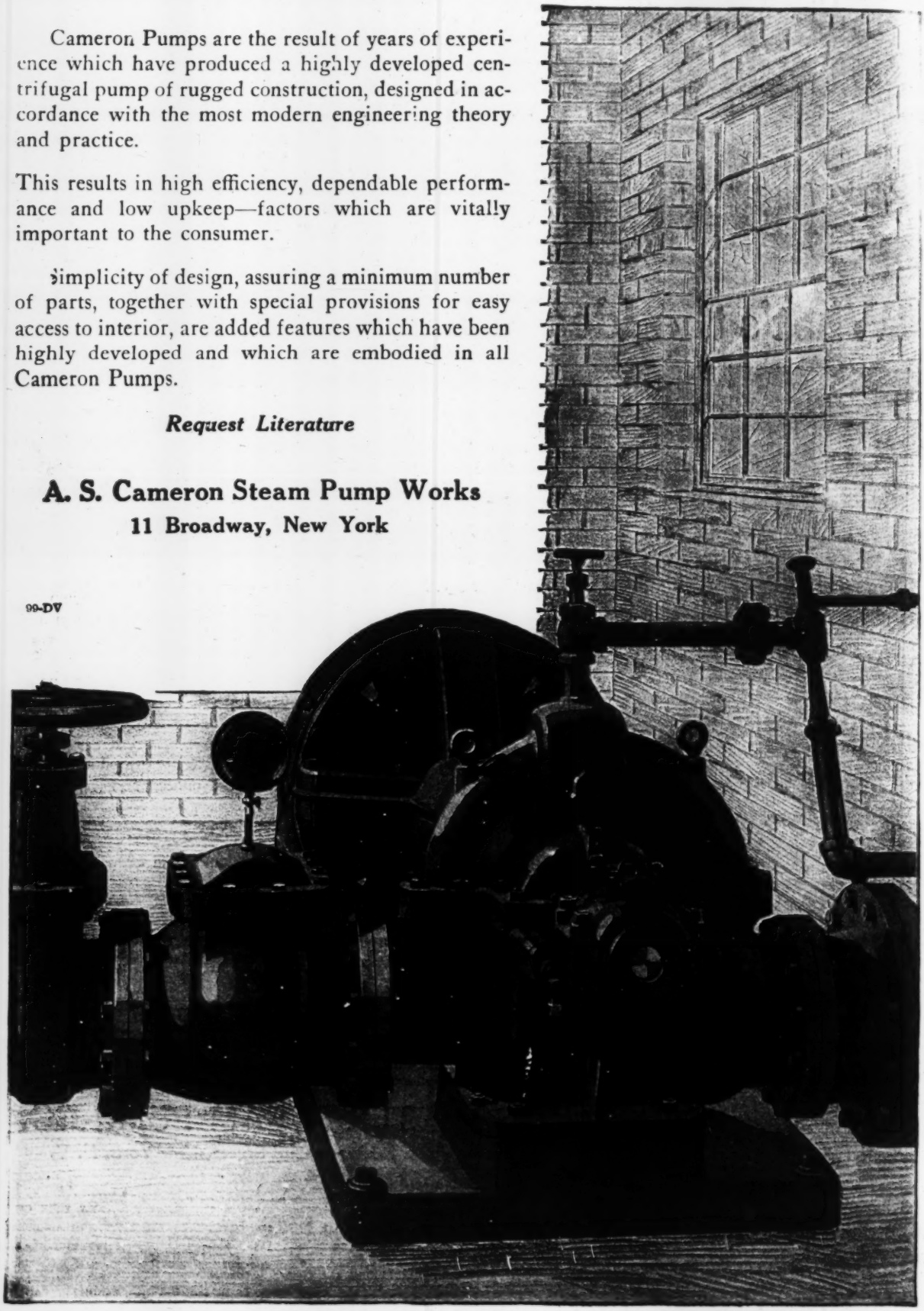
This results in high efficiency, dependable performance and low upkeep—factors which are vitally important to the consumer.

Simplicity of design, assuring a minimum number of parts, together with special provisions for easy access to interior, are added features which have been highly developed and which are embodied in all Cameron Pumps.

Request Literature

A. S. Cameron Steam Pump Works
11 Broadway, New York

99-DV



A Slippery Sidewalk Door—

Are you doing your part to protect pedestrians against slipping accidents in rainy weather?

Specify

Firmtread Floor Plates

For Safety and Economy

SAFETY FIRST

"Firmtread"

a safeguard against accidents

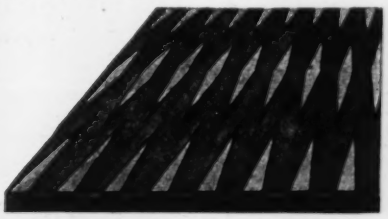
Raised diamond provides continuous drain for water in all directions—no pockets in which water can collect and form ice.

Clean cut edge of diamond, similar to the hot rolled edge of a square bar, secured by rolling the design, gives greater resistance to slipping than the rounded edge of pressed patterns.

Extra high diamond prolongs the life of the plate—other plates soon wear smooth and lose their safety feature.

Not all diamond patterns are "Firmtread"—

But "Firmtread" is the only floor plate with all of these features.



Send for descriptive literature and sizes in stock

JOSEPH T. RYERSON & SON

CHICAGO ST. LOUIS DETROIT BUFFALO NEW YORK

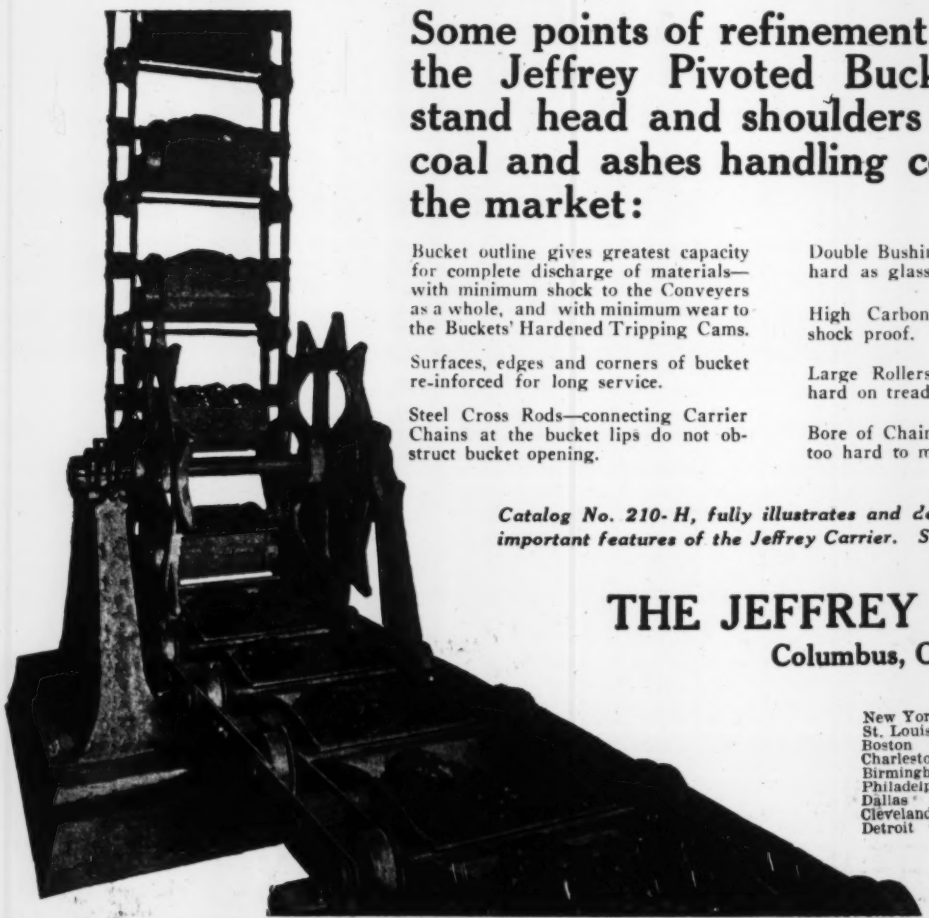
POWER Says → Jeffrey Says:

FROM POWER SEPT. 14th, 1920

Coal Storage and Mechanical Coal Handling

SECURITY in power-plant operation, whether private or public utility in nature, demands greater coal storage these days than in the days when railroad transportation was almost always adequate. The power-plant executive is, therefore, today confronted with a new problem in coal handling on a large scale. This comes most unfortunately at a time when every effort is being made to cut down the amount of labor required. However, the engineer has available many mechanical facilities for coal handling that are proving most efficient in practical operation. The report of the chief engineer of the

Handle it Mechanically



Some points of refinement that make the Jeffrey Pivoted Bucket Carrier stand head and shoulders above any coal and ashes handling conveyer on the market:

Bucket outline gives greatest capacity for complete discharge of materials—with minimum shock to the Conveyers as a whole, and with minimum wear to the Buckets' Hardened Tripping Cams.

Surfaces, edges and corners of bucket re-inforced for long service.

Steel Cross Rods—connecting Carrier Chains at the bucket lips do not obstruct bucket opening.

Double Bushings in Chains—almost as hard as glass, and tough.

High Carbon Steel Side Bars—and shock proof.

Large Rollers in Chain—tough and hard on tread and in bore.

Bore of Chain Rollers ground to size, too hard to machine.

Catalog No. 210-H, fully illustrates and describes other important features of the Jeffrey Carrier. Send for copy.

THE JEFFREY MFG. CO.

Columbus, Ohio

Branches:

New York
St. Louis
Boston
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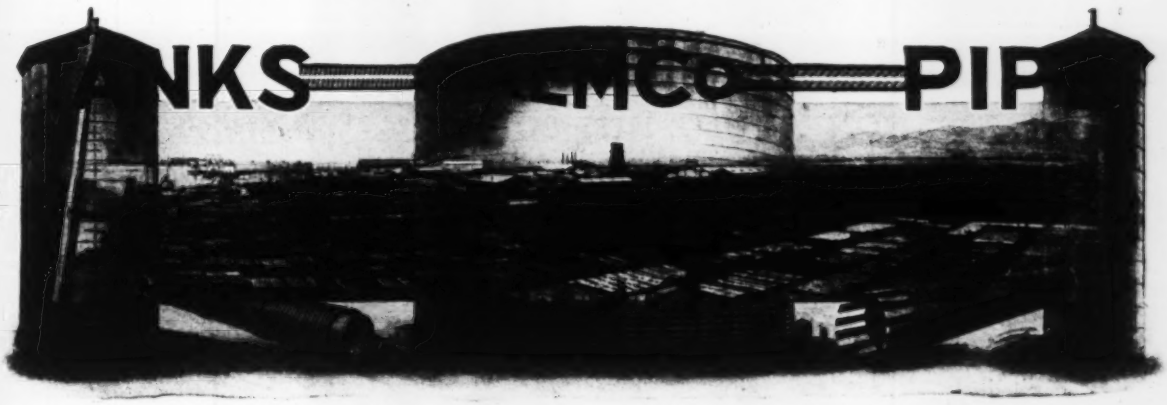


WE WILL SHIP YOU IMMEDIATELY

AT PRICES AND WEIGHTS NAMED BELOW ANY

STANDARD

REMCO TANKS

you desire. They are made from clear, air-dried redwood, free from all defects; manufactured on special machines to minutest accuracy. Guaranteed.

WATER AND OIL TANKS

Made from 2-inch Clear Air-dried Redwood Without Covers

Capacity		Outside Dimensions		Shipping Wt. Lbs.	Price
Gals.	Bbls. 42 Gals.	Diameter ft in.	Height ft. in.		
500	12	5 5	3 11	440	$ 32
750	18	5 9	4 11	580	41
1,000	24	6 6	4 11	655	47
1,500	36	7 1	5 11	830	60
2,000	48	8 1½	5 11	975	70
2,500	60	8 4	6 11	1,145	81
3,000	71	9 1½	6 11	1,270	92
3,000	71	8 5	7 11	1,290	92
4,000	95	9 10½	7 11	1,555	116
4,000	95	9 2½	8 11	1,580	116
5,000	119	10 11	7 11	1,745	131
5,000	119	10 3½	8 11	1,790	131
6,000	143	11 4	8 11	2,010	148
7,000	166	12 1½	8 11	2,160	158
8,000	190	12 3	9 11	2,375	174
10,000	238	13 7½	9 11	2,770	200

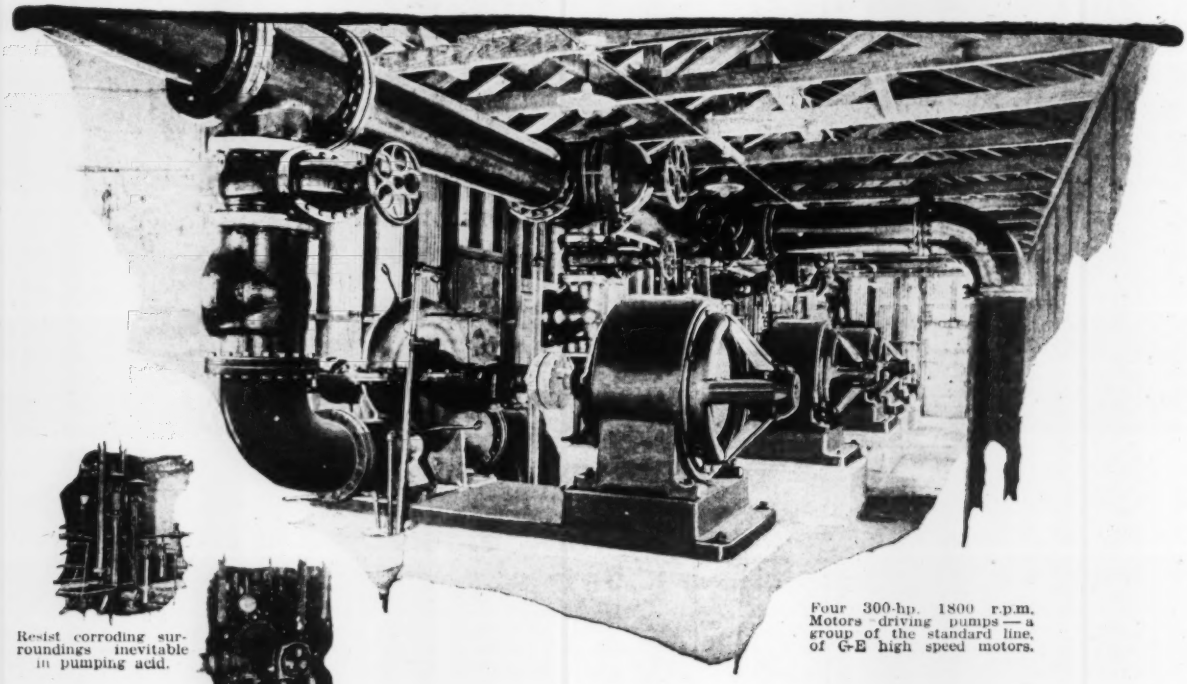
Made from 3-inch Clear Air-dried Redwood

Capacity		Outside Dimensions		Shipping Wt. Lbs.	Price
Gals.	Bbls. 42 Gals.	Diameter ft. in.	Height ft. in.		
10,000	238	13 10½	9 11	4,660	$ 300
12,000	285	13 10½	11 11	5,370	345
15,000	357	15 6	11 11	6,080	405
20,000	476	17 10	11 11	7,280	470
25,000	593	18 4	13 11	8,510	550
30,000	714	20 2½	13 11	9,800	620
40,600	952	23 0	13 11	11,300	743
50,000	1190	24 0	15 11	13,400	900
60,000	1428	26 3	15 11	15,100	990
70,000	1666	28 4	15 11	16,700	1125
80,000	1904	30 3	15 11	18,000	1230
90,000	2142	30 2	17 11	19,800	1340
100,000	2380	30 0	19 11	21,100	1470

All prices are for tanks complete, K. D., F. O. B., Pittsburgh, Cal.

The above tanks are standard sizes. We design and manufacture tanks of all sizes up to 650,000 gallons capacity and tanks of special shapes to meet all requirements.

"CORPORA NON AGUNT NISI SOLUTA"—*Substances do not react until dissolved—is the basis for essential electrical applications in the chemical industry*



Four 300-hp. 1800 r.p.m. Motors driving pumps — a group of the standard line of G-E high speed motors.

Resist corroding surroundings inevitable in pumping acid.

The direct-connected motor is the ideal drive for the centrifugal pump.

Motor driving first and second carbonation pumps in beet sugar factory

Wherever a vacuum pump has to be installed—a G-E motor can be placed to operate it.

G-E high speed motor—made and designed especially for direct-connected centrifugal pumps.

The Need of Electric Motor-Driven Pumps

The ancient Alchemists, in the above Latin axiom, recognized the fact that without solution there would be no chemistry. The modern industrial chemist recognizes the same fact by usually converting his bulk materials into liquid form in the initial stages of the process.

Consequently chemical engineering problems are largely problems in the efficient handling of liquids and the most generally useful machines for this purpose are electrically operated centrifugal, rotary and plunger pumps.

The General Electric Company has developed a line of motors suitable for driving all types of pumps. These motors possess the necessary qualifications for service even when placed in inaccessible locations and neglected for long intervals. They have proved their ability to withstand moisture, corrosive atmosphere, extremes of temperature and other severe operating conditions.

G-E engineers have developed also a variety of standard lines of automatic control for stopping pumps when tanks are full, predetermined pressures reached, etc.

When submitting your pumping problems to a manufacturer of this equipment—specify G-E motor and control.

The G-E specialist in our nearest office is ready to work with you—ask him to call.

General Electric Company

General Office Schenectady, N.Y.

Sales Offices in all large cities

43B-538

OFFICIAL PROPOSALS

Bids: Jan. 19.

Construction of Schools

BOARD OF EDUCATION
Buffalo, N. Y.

Pursuant to subdivision 8 of section 875 of the education law, sealed proposals for furnishing the labor and material required in the construction of the following school buildings located in the City of Buffalo, N. Y., are invited and will be received by the Board of Education at its office, 1401 Telephone Building, Buffalo, N. Y., until 2 o'clock p.m., January 19th, 1921, at which time said proposals will be publicly opened and read.

A—Primary School Building, District No. 21, located on Amherst Street, at Park Lake Avenue;

B—Addition to Elementary School No. 21, located on Hertel Avenue, between Delaware Avenue and Camden Avenue;

C—Elementary School Building, District No. 9, located on Poplar Street at Doat Street;

D—Elementary School Building, District No. 1, located on Porter Avenue at Niagara Street;

E—Addition to Elementary School No. 60, located on Ontario Street at Saratoga Street;

F—Intermediate School No. 6, located on Northampton Street, east of Fillmore Avenue;

G—Intermediate School No. 2, located on Hertyle Avenue at Shoshone Street;

H—Intermediate School No. 7, located on Roslyn Street (extended) at Lang Avenue;

I—Intermediate School No. 8, located on South Elmwood Avenue at Tupper Street;

J—Intermediate School No. 9, located on Sherman Street at Lovejoy Street;

K—Intermediate School No. 11, located on Moreland Street at Bailey Avenue;

L—Intermediate School No. 12, located on Lorraine Avenue, near Abbott Road.

Instruction to bidders and other information, together with plans and specifications for the three buildings noted under A, B and C above, may be procured on and after November 9th, 1920, from the office of the Associated Buffalo Architects, Inc., Room No. 40, No. 232 Delaware Avenue, Buffalo, N. Y. Plans and specifications for the three buildings noted under D, E and F above, may be procured from the same source on and after December 1st, 1920; and plans and specifications for the remaining Intermediate School Buildings noted under G to L inclusive, may be procured on and after December 15, 1920.

A deposit of Fifty Dollars ($50.00) will be required on each set of plans taken from the office of the Architects, which sum will be repaid upon return of said documents intact and in good condition to the Architects not later than February 1st, 1921.

To be entitled to consideration, the proposals must be made upon the forms provided by the Architects, which must be fully completed, and must be delivered to the Board of Education not later than 2 o'clock p.m., January 19th, 1921.

All bids must be without conditions inserted by the bidder or limitations by letter or otherwise.

Security to accompany bid must be furnished by all bidders as provided in bid form.

The Board of Education reserves the right to reject any and all bids.

JAMES STORER, Secretary.

Bids: Jan. 18

Engine and Pump

Okeechobee, Fla.

Bids will be received up until January 18, 1921, for one engine and pump complete, capable of 350 G.P.M., against total head of 140 ft., approximately 65 lbs. pressure.

W. W. DUNNICLIFF,
City Clerk.

The publication of an advertisement on this page is an official notice that bids are wanted from other than local bidders.

It is also a guarantee that maximum competition is invited because Engineering News-Record is the *one* nationally recognized medium for Proposal advertising. Its Searchlight Section is read each week by nearly every worth-while contractor in this country who bids on public work outside his own city.

Official Proposals reaching our office in first mail Wednesday morning (9 o'clock) can usually be published in the issue out the next day. Special price for Official Proposals, 40 cents a line.

Bids: Jan. 20.

Indian Orchard Bridge

Springfield, Mass.

Sealed lump sum price proposals for furnishing, fabricating, erecting and painting the structural steel and fences for the "Indian Orchard Bridge" over the Chicopee River between the City of Springfield and the Town of Ludlow, Hampden County, Massachusetts, will be received at the office of the City Clerk, Room No. 105, Administration Building, Springfield, Mass., until twelve o'clock noon, Thursday, January 20, 1921, at which time they will be publicly opened and read.

This structure consists of two (2) spans deck riveted trusses with I-beam floor system. The general dimensions are: 24 ft. between fences, truss centers 16 ft., length of each span 87 ft. 4½ in., effective depth of trusses 10 ft. 9 in., total length 180 ft. 3 in.

Plans, specifications, proposal blanks and forms of contract and bond may be obtained at the office of the Superintendent of Streets and Engineering, Room No. 326, Administration Building, Springfield, Mass.

Masonry changes and the furnishing and placing of the wooden flooring will not be included in the contract. The contractor will be requested to remove the existing Truesdell Truss Bridge together with its wooden floor system and its temporary supports.

All proposals must be addressed to the Board of Supervisors, City of Springfield, Mass., and the envelope conspicuously marked "Proposal for Indian Orchard Bridge." Proposals must be made upon the forms prepared for the purpose, fully filled in, dated and signed. Proposals of other form, or not properly filled in will be rejected. Every proposal must be accompanied by a certified check in the amount of One Thousand ($1,000.00) Dollars, made payable to the Treasurer of the City of Springfield, Mass., which check will be returned to the bidder upon the rejection of his proposal or upon his executing the contract and filing a satisfactory bond if his proposal is accepted. Should a bidder whose proposal is accepted, refuse or neglect to sign the contract or fail to furnish a satisfactory bond, the City will deduct from the $1,000 check an amount equal to the difference between bid first accepted and the amount of the contract as finally iet. This deduction by the City will be as liquidated damages and not as a penalty.

The bidder whose proposal is accepted will be required to furnish at his expense and file with the City, within ten days from the award, a surety bond duly executed by a surety company authorized to do business within the Commonwealth of Massachusetts, in the amount of Ten Thousand (10,000.00) Dollars for the faithful performance of the contract.

Bidders must state in their proposal the time in which they will agree to complete the work if awarded the contract. This time of completion will be embodied in the contract and made an essential part thereof. Bidders shall upon request, furnish the Board of Supervisors with adequate evidence of their ability to correctly and expeditiously perform the work if awarded the contract.

The Board of Supervisors expressly reserves the right to reject any or all proposals and the right to accept any proposal, or to award the work as deemed to the best interests of the City. Written notification of the acceptance of any proposal sent by Registered Mail to the address given on the proposal form shall be considered an adequate notice of award.

DEPARTMENT OF STREETS
AND ENGINEERING,
Springfield, Mass.
By Robert P. Marsh,
Superintendent

Bids: Jan. 12.

Drainage Work

Muscatine, Ia.

In Levee District No. 17, Muscatine County, Iowa.

Notice is hereby given that in pursuance of an order of the Board of Supervisors of Muscatine County, Iowa, made on the 20th day of December, A. D. 1920, sealed bids will be received by the undersigned for said Board up to 1:30 o'clock, on the 12th day of January, A. D. 1921, for construction of a levee improvement in Levee District No. 17 of Muscatine County, Iowa, in accordance with approved plans, profile, specifications, instructions to contractors, blank form for bids, contract and bond therefor all on file in my office.

Said improvement involves placing about 31,000 cu.yd. of dirt in levee embankment in a total length of about 15,000 ft.

Certified check for ten (10) per cent of amount of bid must accompany bid.

Monthly estimates rendered for 80% of work completed and paid in warrants, improvement certificates, or bonds by County Treasurer and total in warrants, improvement certificates, or bonds on completion and acceptance of the work.

Work of excavation shall commence on or before March first, 1921, and be completed on or bfore December first, 1921.

Instructions and specifications furnished on application to C. H. Young, Chief Engineer, Central States Engineering Co., Muscatine, Iowa.

F. W. JOHNSTON,
County Auditor,
Muscatine County,
Muscatine, Iowa.

Bids: Jan. 6.

Miami River Bridge

Miami, Fla.

Sealed proposals to be filed with the City Clerk will be received by the City of Miami, Florida, up to 7:30 p.m., Jan. 6, 1921, for the construction of a bridge over the Miami River at Avenue G. The bridge is a double leaf steel bascule span with piers and embankment approaches. The clear span is 115 ft.; the total length of improvement 495 ft. One 30-ft. roadway; two 6-ft. walks. Reinforced concrete bascule piers and retaining walls.

Bids upon a lump sum basis and also upon a cost plus a fee basis will be considered. With each bid there shall be a certified check for at least ten per cent of the bid, made payable to the City Treasurer. This check will be forfeited as liquidated damages by the bidder if he is awarded the contract but fails promptly to execute contract and bond, or will be returned to him upon such execution. Checks of other bidders will be returned promptly. The contract will be awarded to the lowest competent responsible bidder, but the City may reject any or all bids, adopt either form for bid, and waive informalities.

Plans and specifications may be examined in the offices of Chas. W. Murray, City Engineer, Miami, Florida, and of Harrington, Howard & Ash, Consulting Engineers, at Jacksonville, Florida, not listed in Jacksonville, and 1012 Baltimore Avenue, Kansas City, Mo. Copies may be secured from the Consulting Engineers at Kansas City by depositing $25.00 Such copies shall be returned and refund of $20.00 made.

OFFICIAL PROPOSALS

Bids: Jan. 4.

Canal Improvements

OFFICE OF
SUPERINTENDENT OF PUBLIC WORKS
Albany, N. Y.

Sealed proposals will be received by the undersigned at his office in the Capitol at Albany, N. Y., until twelve o'clock noon of Tuesday, January 4th, 1921, at which place and hour they will be publicly opened and read, for improving the Cayuga and Seneca canal pursuant to the provisions of Chapter 391 of the Laws of 1909, and Chapter 147 of the Laws of 1903, and amendatory laws, as follows:

CONTRACT "V"

Cayuga and Seneca Canal—Section 1.

For constructing a concrete cut-off wall at the north end of Dam No. 2, Seneca Falls. Sheets 1 and 2.

Plans may be seen and detailed specifications, engineer's estimate of quantities, proposal blanks, forms of contract and bonds required and other information for proposers may be had at the office of the Superintendent of Public Works at Albany, N. Y., at the office of the Assistant Superintendent of Public Works for the Middle Division at Syracuse, N. Y., at the office of the Assistant Superintendent of Public Works for the Western Division at Rochester, N. Y., and at the canal office, Spaulding's exchange, Buffalo, N. Y.

Copies of detailed plans or drawings may be obtained from the State Engineer and Surveyor at Albany, N. Y. upon payment to him of the cost of producing them.

Monthly estimates will be paid of ninety per centum (90 per cent) of the work done at the contract price. Every proposal for said work must be acompanied by a money deposit in the form of a draft or certified check upon some good banking institution in the city of Albany or New York issued by a national or state bank in good credit within the state and payable at sight to the Superintendent of Public Works for five per centum (5 per cent) of the amount of the proposal.

The person whose proposal shall be accepted will be required to execute a contract and furnish bonds within ten days from the date of notice of award delivered to him or then in person or mailed to the address given in the proposal.

Upon execution of the contract and approval of bonds the certified check or draft will be returned to the proposer unless the same shall have been presented for collection prior to such time in which case the amount of the deposit will be refunded by the Superintendent of Public Works.

The deposits of bidders other than the one to whom the award of contract shall be made will be returned immediately after the award has been made.

The bond required for the faithful performance of the contract shall be in such sum as shall be fixed by the Superintendent of Public Works, which sum shall not be less than twenty per centum (20 per cent) of the estimated cost of the work according to the contract price, and an additional bond, known as the labor bond, in the sum of ten percentum (10 per cent) of the amount of the estimated cost of the work according to the contract price, will be required as security that the contractor will pay in full at least once in each month all laborers employed by him upon the work specified to be done in the contract.

In the event that more than one surety company is offered as surety on said bonds co-insurance only will be accepted.

Each proposal must be addressed to the Superintendent of Public Works, Albany, N. Y., and must be endorsed on the envelope with the name of the construction for which the proposal is made.

Award, if made, will be made to the person or persons whose proposal shall be lowest in cost to the State for doing the work, and which shall comply with all provisions required to render it formal. Before any award shall be made the lowest bidder will be required to satisfy the Superintendent of Public Works of his ability to provide suitable equipment and materials for the proper performance of the work.

The right is reserved to reject all proposals and readvertise and award the contract in the regular manner if, in the judgment of the undersigned, the interests of the state will be enhanced thereby.

EDWARD S. WALSH,
Superintendent of Public Works.
November 3 th, 1920.

OFFICIAL PROPOSALS

Bids: Jan. 12.

Laundry Equipment

Binghamton, N.

Sealed proposals for Laundry chinery and Electric Elevator. L dry Building, Binghamton State Hos Binghamton, N. Y., will be rec by the State Hospital Commission, itol Albany, N. Y., until 3 o'clock P on Wednesday, January 12, 1921, when will be publicly opened and read. Propo shall be enclosed in an envelope furnis by the State Architect, sealed and dressed, and shall be accompanied by certified check in the sum of five per (5%) of the amount of the proposal. T contractors to whom the awards are ma will be required to furnish surety compa bond in the sum of fifty per cent (50 of the amount of contracts within thir (30) days after official notice of award of contract, and in accordance with the ter of Specifications No. 3608 and No. 357 including Addenda No. 1. The right is re served to reject any or all bids. Drawings specifications and blank forms of pro osa may be consulted at the Binghamton Stat Hospital, Binghamton, N. Y.; at the New York Office of the Department of Archi tecture, Room 618, Hall of Records Build ing, and at the Department of Architectur Capitol, Albany, N. Y. Drawings, specifica ations and blank forms of proposal may b obtained at the Department of Architectur Capitol, Albany, N. Y., upon reasonable notice to and in the discretion of the State Architect, L. F. Pilcher, Capitol, Albany, N. Y.

Dated: December 18, 1920.

E. S. ELWOOD
Secretary, State Hospital Commission.

U. S. GOVERNMENT

Bids: Jan. 17

PROPOSALS FOR DREDGING. U. S Engineer Office, 616 Army Building, New York City. Sealed proposals will be received here until 12 m., January 17, 1921, and then opened, for dredging in Passaic River, N. J. Further information on application.

Put Public Buying on an Efficiency Basis

Now, more than ever before, it is important that those having contracts to let, whether for new work or the furnishing of machinery or supplies, should consider the best methods of securing extensive competition and low bids.

Thousands of reliable contractors and manufacturers constantly seek opportunities to bid on contracts for public work or supplies. They compete for it. That keeps public expenditures down. It makes the taxpayers' money go farther. It puts public buying on an efficient basis. It makes local bidders figure more closely.

These contractors and manufacturers naturally seek news of contracts where it is most plentiful. They read

ENGINEERING NEWS-RECORD
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the best known and most widely read paper used for the advertising of contracts to be let. Practically every worth-while contractor and manufacturer who wants to figure on public contracts reads Engineering News-Record. No guessing. No uncertainty. Engineering News-Record, with its circulation of 30,000 copies weekly, reaches practically *all* the men who would be interested in advertised contracts.

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As a government, state or municipal engineer, or public official you should use this means of giving your taxpayers the biggest value for their money. Advertise your contracts in the News-Record—the one nationally recognized medium for this class of advertising.

Look at the Proposal in this issue and see how other communities use it.

0063

OFFICIAL PROPOSALS

Bids: Jan. 4.

Construction of Crib

COUNTY OF MERCER
STATE OF NEW JERSEY

Trenton, N. J.

Proposals for Cribbing at Olden Avenue Bridge, Trenton, N. J.

The Board of Freeholders of Mercer County will receive bids on January 4th, 1920, at 2:30 o'clock in the afternoon, at their regular place of meeting, Court House, Trenton, N. J., for constructing a stone and timber crib for protection to draw span of Olden Avenue Bridge over the Delaware and Raritan Canal, Trenton.

The estimated amount of work is approximately as follows:

14 Cribs of 3 different types
320 tons of building stone for crib fillers
4 040 lb. of spikes, washers, bolts, nuts, etc.
10,000 ft. (board measure) of new lumber
(Estimated cost, $7,500.00).

Prospective bidders are referred to plans and specifications covering the above work prepared by Harry F. Harris, Mercer County Engineer, which plans and specifications are on file in his office at the Court House, Trenton, New Jersey. Copies of said plans and specifications may be obtained upon deposit of the sum of two dollars, which will be refunded if the plans and specifications are returned in good condition within 48 hours after the bids are opened.

Each bid must be accompanied by a certified check in the amount of two hundred dollars, ($200.00), payable to Edgar G. Weart, County Collector, also by a proposition from a surety company fulfilling the requirements of Section 507, Chapter 185, P. L., 1918.

The right is reserved to reject any or all bids and to waive any immaterial defect or informality in any bid should it be in the interest of the County to do so.

FRANCIS A. CRAWFORD,
Director of Dept. of Bridges & Culverts.

OFFICIAL PROPOSALS

Bids: Jan. 12.

Drainage Work

Muscatine, Ia.

In Sub District No. 1 of Drainage District No. 13, Muscatine, Iowa.

Notice is hereby given that in pursuance of an order of the Board of Supervisors of Muscatine County, Iowa, made on the 20th day of December, 1920, sealed bids will be received by the undersigned for said Board up to 1:30 o'clock P. M. on the 12th day of January, 1921, for construction of Drainage Improvements in Sub District No. 1 of Drainage District No. 13 of Muscatine County, Iowa, in accordance with approved plans, profiles, specifications and bond therefor, all on file in my office.

Said improvement involves digging two ditches designated "Main Ditch" and "Branch A."

The Main Ditch is about 16,550 ft. long and involves moving approximately 47,150 cu.yd. of dirt. Branch "A" is about 4,170 ft. long and involves moving approximately 9,020 cu.yd. of dirt.

Monthly estimates will be rendered for eighty (80) per cent of the work completed and paid in drainage warrants, certificates, or bonds by the County Treasurer and the total in warrants, certificates, or bonds upon completion and acceptance of the work.

Work of excavation shall commence on or before March first, 1921 and be completed on or before December first, 1921.

Instructions and specifications furnished on application to C. H. Young, Chief Engineer, Central States Engineering Company, Muscatine, Iowa.

F. W. JOHNSTON,
County Auditor,
Muscatine County,
Muscatine, Iowa.

U. S. GOVERNMENT

Bids: Jan. 10.

PROPOSALS FOR DREDGING.—U. S Engineer Office, 329 Customhouse Bldg. New Orleans.—Sealed proposals for dredging in the Intracoastal Waterway between Mermentau and Calcasieu Rivers, La., will be received here until 11 A.M., January 10, 1921. Further information on application.

Bids: Jan. 17.

PROPOSALS FOR BOILERS.—Office of the Secretary, Mississippi River Commission, 1311 International Life Bldg., St. Louis, Mo.—Sealed proposals will be received here until 12 noon, Jan. 17, 1921, for furnishing six return-flue boilers for steamboat. Further information on application.

Bids: Jan. 20.

U. S. ENGINEER OFFICE, 2nd District, Cincinnati, O., Dec. 21, 1920.—Sealed proposals will be received here until 10 a.m. (Central Standard Time), Jan. 20, 1921, and then opened, for constructing or fabricating ready for constructing, steel hull for snag boat "Kentucky." Further information on application. W. P. Stokey, Lt. Col. Engrs.

Bids: Jan. 20.

U. S. ENGINEER OFFICE, Galveston, Texas—Sealed proposals will be received here until 12 m., January 20, 1921, and then opened, for dredging Houston Ship Channel, Texas. Further information on application.

Bids: Jan. 18.

PROPOSALS FOR STERN-WHEEL STEEL STEAMBOAT "LUTHER L. GRIFFITH."—Office, Mississippi River Commission 1st and 2d Districts, Customhouse, Memphis, Tenn.—Sealed proposals will be received here until 11 a.m., Jan. 18, 1921, and then opened, for furnishing the stern-wheel steel steamboat "Luther L. Griffith." Further information on application.

Bids: Jan. 7.

PROPOSALS FOR DREDGING AND WHARF CONSTRUCTION—United States Engineer Office, Norfolk, Va.—Sealed proposals will be received here until 12 o'clock noon, Jan. 7, 1921, and then opened, for dredging in the Elizabeth River, at Norfolk, Va., and constructing a timber wharf partially surrounding the dredged area. Further information on application.

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¶Swart Service on Contract Bonds is all—and possibly much more—than you might expect of a combination of 10 years' successful experience as an engineer, plus 8 years' experience in specializing on Contract Bonds and Compensation Insurance, plus a personal acquaintance with the underwriters established through years of daily and intimate contact. ¶It is as different as it is better,—and, transposing the words, it is as much better as it is different. ¶Either way that is saying "a lot." ¶Swart Service costs you no more than the ordinary sort—frequently not as much, considering the results. It will cost you nothing to learn more about it. Let's get acquainted.

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WRITE FOR RATES

To those who can serve us—and we them

We would like you to get acquainted with the Contractors, Engineers, Architects and city departments in your vicinity, if you happen to live in any one of the following cities:

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Brockton, Mass.	Erie, Pa.	Quebec, Que.
Buffalo, N. Y.	Ft. Smith, Ark.	Rockford, Ill.
Burlington, Ia.	Harrisburg, Pa.	Sacramento, Calif.
Calgary, Alta.	Hartford, Conn.	Salem, Ore.
Carson City, Nev.	Jacksonville, Fla.	Savannah, Ga.
Chattanooga, Tenn.	La Crosse, Wis.	Sioux City, Ia.
Cincinnati, Ohio	Little Rock, Ark.	Springfield, Ill.
Concord, N. H.	Olympia, Wash.	Tallahassee, Fla.
Dallas, Tex.	Paterson, N. J.	Tulsa, Okla.
	Peoria, Ill.	Utica, N. Y.

Assuming that you are in a position to spare an hour or two during business hours, *Engineering News-Record* would like you to act as correspondent for its

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Bear in Mind: You don't have to be an engineer; you just need to be energetic, conscientious, and have some time available for making calls during business hours.

You will receive full instructions and will be paid for every Construction Report that meets our clearly-stated requirements. Get out your pen and ink and write me your qualifications, including time available.

L. V. FLETCHER, Engineering News-Record
Tenth Ave. at 36th St., New York

Home at 6 p.m.

to bed at—?

The hours between home-coming and bed-time are the golden hours of opportunity for the man with the get-a-head spirit. Many successful men can look back to these usually unaccounted-for-hours as the time in which they prepared themselves for the bigger things ahead.

If you are just a plain everyday draftsman, look ahead. Begin now to prepare yourself during spare hours for such positions as: Chief Draftsman, Structural Steel Designer, Engineering Salesman, Assistant Chief Engineer and Chief Engineer.

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Wilson Engineering Courses will help you to the knowledge necessary for your advancement. They are courses in experience—not theory—embodying 30 years' experience of a successful engineer. **WILSON courses are not "cut and dried" but are kept constantly abreast of latest methods and newest developments.**

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Gentlemen: I am interested in the WILSON course checked and shall be pleased to receive further particulars.

Name .....

Address .....

POSITIONS VACANT

CIVIL engineer wanted capable of acc[epting] a position as city engineer; loc[ation] within ten miles of Boston. Salary $[illegible] per year. Applicant will submit [full] account of his experience. P-734, [Eng.] News-Record.

ENGINEER capable of estimating and c[on]tracting for miscellaneous and orn[a]mental iron work in connection wi[th] structural steel shop located at Detro[it] Michigan. Apply giving experience. P-71[illegible] Eng. News-Record, Leader-News Bldg Cleveland.

FIELD draftsman wanted for topographi[c] surveying party working in the Soutl[h]. P-716, Eng. News-Record, Real Estate Trust Bldg., Phila.

GRADE or concrete foreman wanted, not over 36 years of age, and from Middle West. Must have equivalent to a high-school education; opportunity for right man. P-730, Eng. News-Record, Old Colony Bldg., Chicago.

GRADUATED mechanical engineer wanted, preferably with pulp and paper mill experience, for large Canadian sulphite mill. Please state age, experience, salary expected and inclose copies of references. P-746, Eng. News-Record.

REINFORCED concrete engineer wanted by large firm of building contractors in Philadelphia; must be able to design, estimate and detail all classes of reinforced concrete structures, also must be familiar with all modern methods of design. Give age, when available, salary expected and a detail of experience. P-693, Eng. News-Record, 935 Real Estate Trust Bldg., Phila.

SEVERAL structural steel draftsmen wanted. Apply Hay Foundry & Iron Works, Newark, N. J.

EMPLOYMENT AGENCIES

GENERAL Engineering Agency, Jackson Bldg., Pittsburgh, Pa., requires experienced municipal designers, city concrete sewers, draftsmen, structural mill, bridge details, western, railway valuation appraisals buildings and equipment. Reinforced concrete factories, paper mills. Draftsmen for central power stations. Stadia and plane table men, hydrographic and land surveys, Great Lakes and Appalachian Mountains. Mine draftsmen, surveyors, Pennsylvania, Kentucky, Tenn.

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Detailers and Checkers
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Positions permanent for good men.
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CONSTRUCTION EXECUTIVE

WANTED

A corporation controlling thirty large and varied industries desire to secure a Director of Construction who is a real managing executive. He will be responsible for the making of plans and estimates; letting of contracts; supervision of construction; placing of machinery and equipment; installation of heating and ventilating systems, and the caring for sewerage disposal. It will be up to the man who fills this position to build his own organization for handling the work.

At present this corporation has ten large manufacturing plants in the process of construction—three are complete plants—seven are additions to present plants. Nearly every kind of building construction is to be seen in these different plants.

Qualifications:

1. He must be between 30 and 40 years of age, a citizen of the United States, and preferably a University man, from an architectural or civil engineering school.
2. At one time or another he should have been a draftsman and chief draftsman in an architectural office; production manager in getting out plans, specifications, etc., and handling bids and letting contracts; who has worked at various positions on construction, such as foreman, inspector and superintendent, for it will be his responsibility to assume full authority for dealing with contractors to see that he is getting what he pays for.
3. He must be conversant with all phases of industrial business construction from an architectural, engineering and contractor's viewpoint.

This is a big job for a big man.

Applications will be received in strict confidence, and only those which fully state experience, qualifications, age, religion, business and family connections, as well as references, will be carefully and thoroughly considered.

Such a man is invited to address:

"CONSTRUCTION", care of
Arthur M. Crumrine, *Personal*
Room 606, Crumrine Bldg., 43 West Long St.
COLUMBUS, OHIO

EMPLOYMENT AGENCIES

TEACHERS wanted: A professor of highway and civil engineering for head of the department, salary $3,900; an associate professor at salary of $2,800; a professor of mechanical engineering at salary of $2,500. These are university positions for September. Address, The Interstate Teachers' Agency, Macheca Bldg., New Orleans, La.

EMPLOYMENT SERVICE

EXECUTIVES qualified for salaries of $2,500 to $25,000 and upwards, are invited to communicate in strict confidence with the undersigned, who will conduct preliminary negotiations for such positions. The procedure used is peculiar to this service, differing essentially from all others; and is constructive and initiative; applied individually; and in no way jeopardizing present connections. Established 1910. Send name and address only for particulars. R. W. Bixby, Inc., 304 Lockwood Building, Buffalo, New York.

POSITIONS WANTED

Civil Engineers

CHIEF Highway engineer, age 36, graduate civil engineer, associate member American Society Civil Engineers, employed as executive supervisor of construction and maintenance of highways would consider position with private firm or municipality in similar capacity. PW-680, Eng. News-Record.

EXECUTIVES

seek'ng superior positions find our confidential service extremely satisfactory. Let our Mr. H. H. Harrison confidentially negotiate for you suitable positions with proper employers, as he has successfully done for thousands of others since 1909. Inquiries invited.

THE NATIONAL BUSINESS BOURSE
Confidential Negotiators
Association Building—Ch'cago

POSITIONS WANTED

CIVIL engineer, graduate, 17 years' experience, real estate development, housing, municipal work, highways, wharves, docks, industrial plants, buildings, hydroelectric developments, railroads; registered in Michigan, desires position, Middle West preferred. PW-655, Eng. News-Record, Leader-News Bldg., Cleveland.

CIVIL engineer, 20 years' general experience, design, construction and operation, speaks Spanish, references. Will accept commercial or fiduciary position. Go anywhere, Mexico or Central America preferred. PW-700, Eng. News-Record, Old Colony Bldg., Chicago.

CIVIL engineer, technical graduate, 45 years of age, and speaking several languages, will be open for engagement March 1st, 1921. Expert on structural engineering and reinforced concrete design and construction. Would be most suitable as chief engineer for industrial plant, assuming full charge of building maintenance, and building developments. Has had varied experience with pulp-paper mill designs, steel plants, smelter plants, cement plants, gypsum plants covering every type of structure from workingmen's cottages to shop structures, and such structures as hotels, schools, hospitals, etc., owned and operated by private corporations. Capable and very efficient. Also good executive. No objection to foreign countries. Salary not less than $6,000 per year. PW-685, Eng. News-Record, N. Y. City.

CIVIL and sanitary engineer, age 29, University graduate; seven years' experience, tunnel work, sewage disposal, drainage, general sanitation, water supply, road work in the tropical Spanish speaking countries; location immaterial; available at short notice. PW-722, Eng. News-Record.

CIVIL engineer—recent graduate, seeks opportunity, sales or construction field. Building preferred; good personality, character and appearance. PW-684, Eng. News-Record.

POSITIONS WANTED

CIVIL engineer; 25; technical education, single, three years' experience in field and office on roads, docks, topography land surveys and general construction. Can take responsible charge in office or field. Services anywhere. PW-731, Eng. News-Record, Real Estate Trust Bldg., Phila.

CIVIL engineer, 27 years old. C. E. degree, desires position with construction company in Cleveland. Estimating preferred. PW-733, Eng. News-Record, Leader-News Bldg., Cleveland.

CIVIL engineer and executive, technical graduate, member of A. S. C. E.; 10 years' broad experience in designing and supervising, also in administration and investigation work; specialist in hydraulics and concrete; now open for engagement in the Eastern States. PW-748, Eng. News-Record, Real Estate Trust Bldg., Philadelphia.

GRADUATE civil engineer, 27, with four years' experience, chiefly in industrial plant maintenance and hydraulic dredging, desires position offering experience and prospects. Reference is present employer by whom employed for past two years. Location immaterial. PW-694, Eng. News-Record, Real Estate Trust Bldg., Phila.

Surveying

GRADUATE, 14 years' experience, property and topographic surveying, also subdivision planning, highway, sewer and water work. PW-654, Eng. News-Record.

ESTIMATOR superintendent, 12 years with high class construction concerns, reliable and up to date estimator, organizer and executive. New York interview. PW-618, Eng. News-Record.

ENGINEERING NEWS-RECORD

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4 to 7 in., $4.80 an in. 50 to 99 in., $4.40 an in.
8 to 14 in., $4.70 an in. 100 to 199 in., $4.30 an in.

POSITIONS VACANT — EMPLOYMENT — POSITIONS WANTED

Positions Wanted Continued from Page 73

POSITIONS WANTED

Bridge and Structural

STRUCTURAL designer, graduate C. E., 7 years' experience on reinforced concrete and steel commercial and industrial buildings, also railroad bridges and other structures, desires responsible position. PW-370, Eng. News-Record.

STRUCTURAL engineer, graduate; seven years' experience, design reinforced concrete, structural steel, plant layouts, and hydro-electric work; initiative and executive ability. PW-620, Eng. News-Record, 935 Real Estate Trust Bldg., Phila., Pa.

STRUCTURAL engineer, graduate C.E. with 20 years' experience in all classes of construction work including concrete. Have been in charge of both design and outside construction, desires position of responsibility. PW-745, Eng. News-Record.

TECHNICAL graduate, age 22, desires office or field position; three years' experience structural drafting, computing. PW-738, Eng. News-Record.

Drafting and Designing

DESIGNER, cheker, detailer, ten years' experience structural steel, concrete, mill buildings, technical graduate. New York position preferred. PW-626, Eng. News-Record.

DRAFTSMAN, excellent tracer and letterer, desires position in Newark or New York. Available at once. PW-623, Eng. News-Record.

MECHANICAL draftsman, experienced in conveying machinery, power plant work, etc.; also plant layout, automatic fire protection and architectural drafting; experience nine years. Louis J. Rauch nberger, 304 Ave. D, College Point, N Y.

STRUCTURAL checker, designer and detailer. Technical graduate, long experience, moderate salary, with permanent position. PW-616, Eng. News-Record.

POSITIONS WANTED

Superintendents

CONSTRUCTION superintendent, age 37, married, 15 years' experience, general construction and building supt.; available January 10th.; location immaterial. Can handle labor and get results. PW-710, Eng. News-Record.

CONSTRUCTION superintendent, industrial buildings, locks, dams, railroad construction; graduate engineer; present salary $4,000; available at once; New York interview. PW-735, Eng. News-Record.

CONSTRUCTION superintendent high tension transmission, catenary or cross-country interurban; extensive experience. Can apply machinery and give low cost. Age 48. PW-741, Eng. News-Record, Real Estate Trust Bldg., Philadelphia.

POSITIONS WANTED

CONSTRUCTION superintendent, 14 years' practical experience reinforced concrete buildings, technical education; available Jan. 1; location East preferred; salary $250. PW-740, Eng. News-Record.

ENGINEER open for a position as superintendent or engineer with contracting or engineering firm; 18 years' experience water supply, sewerage, reinforced concrete and building construction, technical school graduate. PW-551, Eng. News-Record.

PLANT superintendent or master mechanic, age 35, married; salary $3,000. PW-742, Eng. News-Record.

SUPERINTENDENT—any kind of state or county road work; South preferred, where work will go all winter. Can furnish any part of organization. PW-653, Eng. News-Record, Real Estate Trust Bldg., Philadelphia.

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Boarding Camps, and Commissaries, operated for Railroads, Manufacturers, Contractors, Coal Mines, etc. We furnish laborers, mechanics and all classes of skilled help. Employment offices at Cleveland, O., Cincinnati, O. Toledo, O., Columbus, O., St. Louis, Mo., Indianapolis, Ind., Chicago, Ill., Danville, Ill., and Buffalo, N. Y.

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Labor Agents and Boarding Contractors
We Ship Laborers and Operate Camps Anywhere
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Construction Engineer
Available Jan. 15th. Civil Engineer, age 40. Very successful as general superintendent on large operations. Have built several industrial plants complete with power houses and mechanical equipment. Will go anywhere. Salary to be adjusted in accordance with future opportunities offered.
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MIELE BROS. TELEPHONE, CANAL 8970
139 MULBERRY ST., NEW YORK CITY

POSITIONS WANTED

CONSTRUCTION engineer, age 42; 18 years' experience, desires position on large industrial, mining, pipe lines or power work; experience embodies designing, detailing, specifications, contracts and superintendence, executive in both office and field; salary depending upon location and conditions. PW-737, Eng. News-Record.

SUPERINTENDENT on construction work wants position after January 1, 1921, with construction company as superintendent or assistant superintendent; 12 years' experience; prefer heavy concrete work; talk Spanish. First class reference. Address L. V. P., 202 N. 3rd Street, Steubenville, Ohio.

SUPERINTENDENT of building construction desires engagement with architect, engineer or general contractor; 15 years' experience in factory, commercial and Federal buildings, excellent references, modest salary. J. T. J., 26 Marquette St., Detroit, Mich.

Miscellaneous

ARCHITECT and construction engineer, formerly in charge of the architectural department for a large tire and rubber company, desires similar position with a manufacturing concern. Can give the best of references. Address, Architect, 146 North Forge Street, Akron, Ohio.

CONTRACTOR'S engineer and estimator, age 38; twenty years' experience, good judgment, full knowledge of costs, construction, design, purchasing and methods of building business; handled millions of dollars worth of building contracts from original estimates to final acceptance; tireless, energetic, reliable, desires only a good connection with a reliable firm; salary and bonus system preferred; available Jan. H. G. L., 2408 West Elkhart Street, Philadelphia.

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536 Leader-News Bldg., Cleveland.
1570 Old Colony Bldg., Chicago.
531 Rialto Bldg., San Francisco.

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Original letters of recommendation or other papers of value should not be enclosed to unknown correspondents — send copies.

0195

POSITIONS WANTED

CONTRACTOR'S engineer. Thorough knowledge of all branches of the contracting business. A high grade estimator with many years' experience on buildings, bridges, sewers, earthwork in both design and construction. Age 38, initiative and foresight. PW-556, Eng. News-Record, Real Estate Trust Bldg., Phila.

ENGINEER, junior, fourth year engineering student, three years general drafting experience, seeks position in any capacity with building contractor. PW-663, Eng. News-Record.

FORMER Captain and Constructing Quartermaster, U. S. Army, three and one-half years, honorably discharged last October, desires position; executive ability and experienced in construction work. PW-729, Eng. News-Record, Real Estate Trust Bldg., Philadelphia.

NOW holding important executive position in large shipbuilding company, and seeks a change; graduate civil engineer; 10 years' experience structural steel work before entering college; 15 years' experience handling men; have necessary experience and ability to manage a shipyard or structural steel plant or be a sales representative. PW-671, Eng. News-Record.

OFFICE and field engineer, seven years' frog and switch details, layouts and estimates on trolley and steam work; three years assistant superintendent reinforced concrete building construction; technical education, fine draftsman; would accept temporary position office or field. PW-739, Eng. News-Record.

SALES engineer, university graduate, age 30, eight years' experience, general engineering work including tunnel, sewerage and road work, and also two and one-half years' of sales work with a reputable concerns. Employed at present; available by Jan. 1st. Service in foreign countries preferred. PW-721, Eng. News-Record.

TRANSITMAN desires position, experienced in railroad and highway construction mines and topographical surveys. PW-732, Eng. News-Record, Real Estate Trust Bldg., Phila.

TWO first-class bricklayers desire job in South; 20 years' experience at fire and all kinds of brickwork. State terms; union men. William Stoll, 288 Cornelia St., Brooklyn, N. Y.

EVENING WORK WANTED

EVENING work wanted by experienced draftsmen, either drafting or tracing neatly finished; property maps, etc. EWW-488, Eng. News-Record, Leader-News Bldg., Cleveland.

EXTRA WORK

REINFORCED-CONCRETE bar lists, bent and straight, with placing plans from architects' and engineers' drawings or designs for contractors executed promptly. XW-372, Eng. News-Record.

STRUCTURAL steel and reinforced concrete designing and detailing; work promptly executed; steel detailing also done on the pound basis. PW-747, Eng. News-Record, Old Colony Bldg., Chicago.

TWO structural engineers in New York desire extra work detailing and checking structural steel work. XW-371, Eng. News-Record.

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Industrial Plants Engineer

Industrial plants engineered, complete design and specifications for entire plants, structures or equipment. Boiler and power plants, transmission machinery. Design of special equipment for chemical plants, oil refineries and allied industries a specialty. Backing 15 years' broad and varied experience in this line. Box 77, Station "O," New York.

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Steel detailing and checking done by professional structural draftsmen and checkers, get our prices and terms, they will please you. Bambach & Doerr, 28 E. Jackson Blvd., Chicago.

Steam Shovels

Work wanted for three steam shovels and fifty teams. Address P. O. Box 342, Ashland, Ohio.

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Eastern Representative Available

Salesman, aggressive, experienced salesman desirous of connecting as Eastern representative for manufacturer of construction equipment. AS-736, Eng. News-Record.

New York Representation

Sales engineer with an established office in New York City and extensive acquaintance in the metropolitan district among contractors and architects, with whom he is keeping in constant touch, desires to represent manufacturer interested in reaching this trade personally. AS-725, Eng. News Record.

Sales Engineer

Office in Baltimore, will undertake representation of mechanical, electrical or structural equipment requiring experienced engineering service in connection with sales. AS-743, Eng. News-Record, Real Estate Bldg., Philadelphia.

BUSINESS OPPORTUNITY

Partner Wanted

Active partner to buy interest in an established concrete road building company doing a nice business on Long Island, N. Y., as our books will show. Engineer preferred. Do not answer unless you have the money and mean business. BO-715, Eng. News-Record.

Article Wanted to Manufacture

By a New Jersey manufacturing concern, manufacturing electrical machinery and who are anxious to take on an additional line, some patented article of merit. Will buy outright or manufacture on a royalty basis. BO-672, Eng. News-Record.

FOR SALE

Boilers

6 Hor. Ret. Tubular Boilers, 150 HP., 100 lb. pressure, 72" x 18'; also 4 Heine boilers, 385 HP. N. Y. Sanitary Utilization Co., 149 Remsen St., Brooklyn, N. Y.

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Three top floors, two at 2,500 sq.ft., one at 1,000 sq.ft. (together or separate), of a thoroughly modern seventeen story office building now being erected at the corner of Frankfort and Gold Streets, one minute walk from Manhattan Terminal of the Brooklyn Bridge. Splendid offices for architects orengineers. Light on all sides. By renting now, interior arrangements can be made to suit. George E. Relyea, Agent, 136 Front St., N. Y.

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MODEL 4
New Machine equipped for Grading or Ditching. Competent crew.
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STEAM SHOVELS
FOR RENT
Two standard, late models, ¾ yard traction steam shovels, in fine condition.
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Used Equipment. I will Test, Inspect and Report on Valuation, also load ship and in-tall. Contractors' Used Equipment, Steam Shovels, Locomotives, Cranes, etc. Before you buy get my services. Terms reasonable. 20 years' practical experience. Best of references.

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KEYSTONE EXCAVATOR
New machine equipped with Skinner scoop, Ditcher scoop, crane attachment, Mass. Standard boiler. Experienced crew.
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Steam Shovels for rent with crews or work taken by contract.
Dinkeys and cars or teams furnished.
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Bunks—Upper and lower sleeping Bunks, made of Black Angle Iron, National Spring and helicals, size 2 ft. 6 in., $5.50.

Bunks—Upper and lower sleeping Bunks, made of continuous posts, white enamel, size 3 ft., $6.50.

Wall Tents, white, sizes 9½ x 12, 10 x 12, 12 x 14, 14 x 14, prices on application.

U. S. Government Khaki Wagon Covers. Size 12 x 12, No. 4 duck, new, waterproof; $20.00.

U. S. Government Khaki Wagon Covers, New. 10 oz. Size 11 ft. 6 in. x 14 ft. 6 in. Price $16.50.

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Aviator Leather Jerkins or Vests made up leather of outer covering, with an O.D. wool lining as used by the aviators in the U. S. Army, all sizes, $5.75.

U. S. Navy all wool Blankets (white), $6.

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Commercial Wool Army Blankets. Made from overcoatings, in gray and mixtures; $4.45.

Commercial Wool Blankets in gray, blue and tan, with stripes, at $2.95.

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Contractors' single size Double cotton Blankets, rough, $1.50.

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White cotton felt mattresses, size 3 ft. A. C. A., tick $4.95.

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Cotton Top and Bottom Mattresses, size 3 ft. (used), $2.50; in good condition.

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Having purchased the entire plant and property, known as the Maryland Shipyard & Supply Base, located at Soller's Point, Baltimore, Maryland, we are offering F.O.B. Plant, for *immediate shipment* all or any part of the following:

Main Engines	**Tanks**	**Wire Rope, all sizes**
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Your inquiries for anything you may need in Equipment or Machinery
Special Bargains for Prompt Shipment
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FLOATING STEAM DIGGER AND DERRICK
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Legless. Height 32 in. Single Column

53 Radiators—30 Sections, 75 sq.ft. each.
166 Radiators—31 Sections, 77.5 sq.ft. each.
4 Radiators—17 Sections, 42.5 sq.ft. each.
Made by American Radiator Co.

Also a varied lot of used radiation in good condition.

Offered subject to prior sale. Inspection invited

BY-PRODUCTS DIVISION, SECTION A

THE GOODYEAR TIRE & RUBBER CO.
AKRON, OHIO

FOR SALE

One No. 5 Austin

Locomotive Crane

Gasoline power, caterpillar wheels, 40 ft. boom, lifting hook, equipped for drag line or clam shell work. Unusually good condition.

Massachusetts Oil Refining Co.
East Braintree St. Mass.

Locomotive Crane

1—No. 8 Browning Locomotive Crane, eight wheel, M.C.B., 50-ft. boom, all steel house, 54-in. Butt strapped boiler, bucket handling, immediate delivery.

MIDWESTERN COMPANY
140 So. Dearborn St., Chicago

Four Porter Locomotives

36 IN. GAUGE

Four wheel saddle tank, 9-in. x 14-in. cylinders, weight 12 ton, wheel diameter 28-in., wheel base 5-ft. 3-in., boiler diameter 32-in., steam pressure 130 lb., hand brakes, new cabs, tires turned, new bumpers, fine order.

READY FOR IMMEDIATE SHIPMENT FROM TOWNLEY, N. J.

We also have on hand other Locomotives, Cranes, Cars, Crushers, Boilers, Pumps, Engines, Hoists and many other items of interest.

Reading Engineering Company, Inc., Tribune Bldg., New York City

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MACHINERY **WANTED** MISCELLANEOUS

WANTED HOISTING ENGINES

All sizes up to 10 x 12 Double Cylinder, Single, Double or Triple Drum with or without boilers. Advise in detail stating best cash price, etc.

BECKWITH MACHINERY CO.
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CARS WANTED

2—60,000 lbs. capacity Side Door Pump Ballast or Gravel Cars. Give Specifications and price desired.

NIAGARA ALKALI CO.
Niagara Falls, N. Y.

WANTED TO BUY

Hoisting Engines
Concrete Mixers
Cranes—Draglines
or any
Construction Equipment

EQUIPMENT CORP. OF AMERICA
Lumber Exchange Bldg., Chicago, Illinois

Will purchase at a bargain.
From one to four gasoline
LOCOMOTIVES
either three or six ton, also three miles industrial rail—State lowest price, condition and present location.

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Wanted—Dragline Machine

Class "14" Bucyrus or Monighan preferred, 2½ yard bucket, 60 ft. boom. Send full particulars, general condition, price, etc.

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76 W. Monroe St., Chicago, Ill.

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DREDGE WANTED

Dipper Dredge, ⅝ yd. to 1 yd. Steel Hull, Crude Oil or Distillate Engine.

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Lake Charles, La.

SPECIAL

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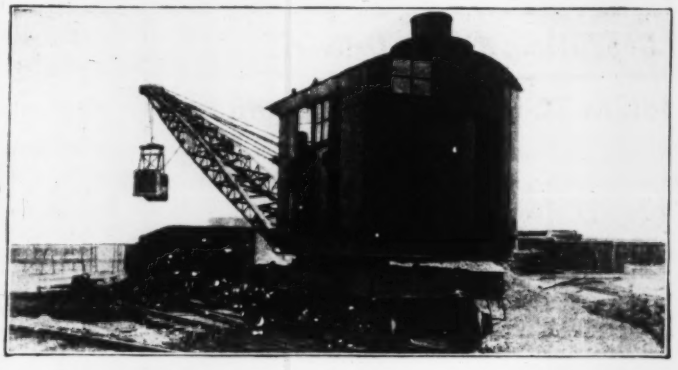

OR SALE

We own outright and offer for prompt deliveries the following Equipment, for Lease or Sale—Subject to Prior Disposition

1—30-ton **Industrial Works Locomotive Crane**, 50-ft. and 90-ft. Sectional Radius Boom, 8-Wheel Railroad Trucks, etc. This is a strictly modern practically **new** Locomotive Crane, little used in actual service.

1—20-25-ton **Browning Locomotive Crane,** 50-ft. Radius Boom, 8-Wheel Railroad Trucks, etc. This is a splendid, modern Locomotive Crane.

2—20-ton **New Brownhoist Locomotive Cranes,** 50-ft. Radius Booms, 8-Wheel Railroad Trucks, etc. These Locomotive Cranes are **new** machines. Delivery about January First.

1—20-ton **McMyler Interstate Locomotive Crane,** 50-ft. Radius Boom, 8-Wheel Railroad Trucks, etc. This Locomotive Crane is a **strictly modern machine** little used in actual service, coming right out of our Chicago shops. **Just like new. Prompt shipment** about December Twenty-fifth.

1—15-20-ton **Brownhoist Locomotive Crane,** 50-ft. Radius Boom, 8-Wheel Railroad Trucks, etc. This Locomotive Crane **very fine machine. Prompt delivery** about December Twenty-eighth, right out of our shops.

1—15-ton **Brownhoist Locomotive Crane,** 50-ft. Radius Boom, 4-Wheel Trucks, etc. **Strictly modern crane,** very little used. **Quick shipment** about January First.

1—10-ton **McMyler Interstate Locomotive Crane,** 35-ft. Radius Boom, 4-Wheel Trucks, etc. **Very Fine Crane. Prompt shipment** about January Fifth, right out of our shops.

Several **Clam Shell Buckets,** various sizes from ½ to 1½ yard capacity. **Blaw Knox, Brownhoist, Owens, Browning, Hayward** and **McMyler** manfacture. Some of these Clam Shell Buckets have been used in actual service less than thirty days. These Clam Shell Buckets are just like **new.**

1—**American Hoist and Derrick Company Hoisting Engine with Boiler,** 8¼ x 10, Double Cylinder, Double Drum, etc. **Absolutely just like new. Immediate shipment.**

1—**All steel Stiff Leg Derrick,** 40-ft. Boom, etc. **Just like new. Practically immediate shipment.**

2—No. 0 **Thew Traction Steam Shovels,** ¾-cu. yd. Dippers. Little used, right out of our shops. **Prompt shipments.**

1—17 x 24—45-50-ton, 6-Wheel Connected, Standard Guage **Baldwin Switching Locomotive** with Separate Tender, coming right out of our shops. Strictly A-1 condition, just like new.

1—16 x 24—40-ton, Standard Gauge 4-Driver (Rhode Island) **American Locomotive Company Switching Locomotive,** with separate Tender. **Immediate** shipment, right out of our shops.

Several 36-in. Gauge, also 24-in. Gauge Saddle Tank Locomotives for **Prompt Shipment.**

2—Standard Gauge **Combination Passenger and Baggage Coaches. Prompt shipments,** right out of our Chicago shops. **All quotations subject PRIOR SALES. Please act quickly.**

All quotations subject PRIOR SALES. Please act quickly.

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What are your Requirements? **Please Telegraph, Telephone or Write us**

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12—1-yd. to 36-ft. Steubner controllable, center dump.

8—30-ft. Insley controllable.

5—27½-ft. Lakewood Eclipse.

1—¾-yd. Williams Clam Shell.

1—1-yd. Hayward Dragline.

STEAM SHOVELS

2—Marion 60 shovels, Shop Nos. 1999 and 2059.

1—70-C Bucyrus, Shop No. 1219.

1—Model 60 Marion, Shop No. 2130.

1—Model 1 Thew on railroad trucks, ⅞-yd.

LOCOMOTIVES

2—12-ton, 9 x 14-in. Porter dinkeys, 36-in. gauge.

1—17 x 24-in., 55-ton, 4-6-0, standard gauge.

8—18-ton, 10 x 16-in. Porter dinkeys. 36-in. gauge.

3—25-ton Forney type.

BOILER

1—125-hp. Ames L.T. butt strapped, locomotive.

CAR

1—Standard gauge Spreader Car.

PUMPS

1—10-in., 3-stage Centrifugal, direct connected to Moore steam turbine, 500 gallons of 375-ft. head.

1—14 x 7 12 Underwriter's Pump (Knowles).

1—10-in. Sand Pump, connected to 9½ x 9½ double cylinder engine.

1—12 x 17 x 10 x 15 Worthington Steam Pump, for 140-lb. water pressure.

We have a large stock of contractor's pumps both steam and gasoline operated.

MISCELLANEOUS

2—Vulcan drop Hammers.

Boiler, portable locomotive type, 100-hp., butt strapped.

1—10-ton, 3-wheel Kelley-Springfield Roller.

1—1 Bag Koehring Paver, new gasoline engine on traction wheels with 8-ft. chute.

1—13-E Foote Paver, with 9-hp. gasoline engine mounted on traction wheels, with 18-ft. distributing chute.

1—No. 11 Cube Mixer, mounted on traction wheels, with steam engine, and boiler, equipped with boom and bucket, also gravity chute.

350 tons 56-60-lb. Relaying Rail.

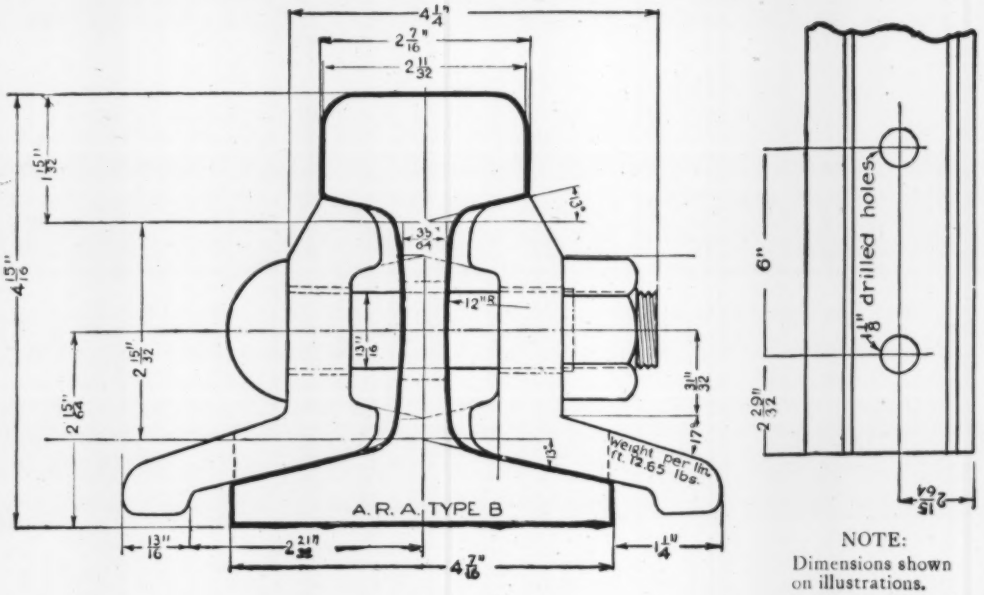
Offer Us Your Used Equipment—We are always in the market for heavy construction equipment and buy for cash. We have large repair shops in Pittsburgh, where all equipment is thoroughly repaired before being reshipped. Send for Our Complete Lists.

H. KLEINHANS CO., Union Arcade, Pittsburgh, Pa.

Eastern Office: 30 Church St., New York

KLEINHANS

NEW 80-LB. RAIL
AND ACCESSORIES



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We own and offer for prompt shipment 80 lb. A. R. A. Type "B" Rail approximately 35,000 gross tons—drilled—standard lengths.

Accessories for 80 lb. Rail

Angle Bars, Track Bolts and Nuts—Size $\frac{7}{8}$ in. x $4\frac{1}{4}$-in. Track Spikes—Size 9/16-in. x $5\frac{1}{2}$-in.

This material is in storage at **Kearney, N. J.**

Quotations and further particulars on request.

HYMAN-MICHAELS COMPANY

(Refer to Department "A")

PEOPLE'S GAS BUILDING, CHICAGO, ILL.

BRANCHES:

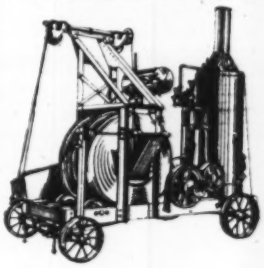
Woolworth Bldg., New York; 1st National Bank Bldg., Pittsburgh; Railway Exchange, St. Louis

SERVICE
BOUGHT ECA REBUILT RENTED
SOLD

"WE BUY— REBUILD— SELL— OR RENT—"

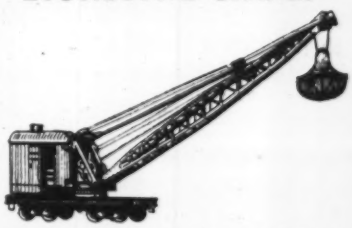
All the Equipment listed below is owned by us and may be inspected at one of our own warehouses.

CONCRETE MIXERS



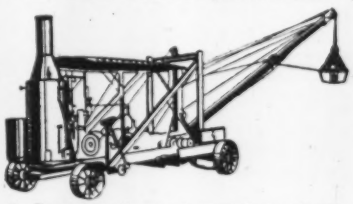
1—28-S Mixer, capacity one yard mixed material, with steam engine and boiler on skids, Marsh-Capron.
15—21-S Mixers, all capacity ¾ yard with steam engines and boilers or without power for electric motor, with side loaders or batch hoppers, following makes: Marsh Capron, Smith Chicago, Ransome and Lakewood.
50—14-SMixers, apacity ½ yard mixed material with steam engine and boilers, side loader and water tank, following makes: Marsh Capron, Koehring, Milwaukee, Smith, Smith Chicago, Ransome, Chain Belt, Foote, Lakewood, Oshkosh, Cube, Ideal.
2—14-S Mixers with gasoline engine, side loader, water tank, one Marsh Capron and one Cube.
10—10-S capacity 1/3 yard mixed material with side loader and water tank, 1 with gas engine, 6 with steam engine and boiler, following makes: Marsh Capron, Milwaukee, Koehring, Chain Belt, Ransome and Austin Cube.
20—7-S one bag mixers with side loaders or low chargers, 16 with gas engines, 4 with steam engine and boiler.

LOCOMOTIVE CRANES



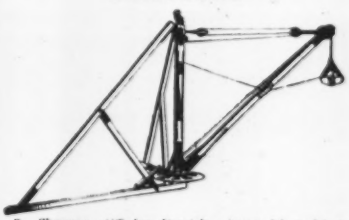
1—15 ton 8 wheel M.C.B., O. & S. Locomotive crane with 10 ft. steel boom, bucket handling.
1—12½ ton Browning standard gauge Locomotive Crane, bucket handling.
1—20-25 Ton, 8 Wheel, M.C.B. Industrial Locomotive Crane, with 70 ft. boom, bucket operating.

BYERS AUTO CRANES



6—Byers Auto Cranes, 5 mounted on self-propelled traction wheels; one on caterpillar; 3 with 30 ft. boom; 3 with 35 ft. boom, with or without buckets.

DERRICKS

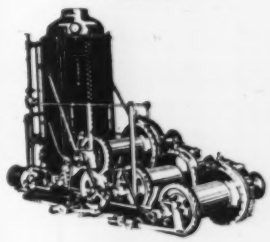


2—Shannon stiff leg Derricks, boom 14 x 14 x 75 ft., mast 12 x 12 x 38 ft., bucket handling.
3—Terry & Tench stiff leg Derricks, boom 14 x 14 x 60 ft., mast 12 x 12 x 32 ft., bucket handling.
2—Lambert stiff leg boom 12 x 12 x 50 ft., bucket handling.
1—Shannon Guy Derrick, 14 x 14 x 80 ft. mast, 14 x 14 x 75 ft. boom, bucket handling.
1—Lambert Traveling Derrick, with 50 ft. boom, bucket operating, track gauge 16 ft., with National 7¾ x 10 D.C. 3 drum hoist with boiler; complete outfit.
2—All steel stiff leg, mast 10 ft., boom 65 ft., capacity 10 tons.
1—Brand New American Stiff Leg Derrick, boom 12 x 12 x 50 ft., bucket operating.
1—All Steel Guy Derrick, mast 90 ft., boom 81 ft., with guys, bucket operating, capacity 10 tons.
1—Dobbie Guy Derrick—16 in. x 16 in. x 80 ft. mast, 16 in. x 16 in. x 72 ft. boom.

CLAM SHELL BUCKETS

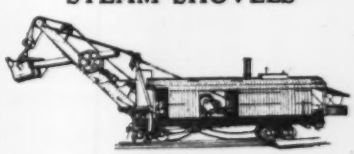
2—2 yard clam shell: 1 O. & S.; 1 Williams Hercules type—New.
3—1½ yard Buckets: 1 class E-Howard; 1 O. & S.; 1 Mead Morrison.
9—1 yard Buckets: 1 Hayward; 6 Standard; 2 Orton and Steinbrenner.
5—¾ yard Buckets: Standard, O. & S.
7—½ yard Buckets: 1 Standard; 1 Hayward; 2 Kiesler.
6—½ and ⅝ yard Tower Buckets with Hoppers.
6—Tip-Over Buckets: 5—½ yard; 1—1 yard.

HOISTS



1—10 x 12 D.C. 3 Drum Lidgerwood with Boiler.
2—9 x 10 D.C., D.D. with Boilers, 1 Lambert and 1 Lidgerwood with 4 independent clutch winch heads.
1—9 x 12 D.C. 3 Drum National with boiler.
2—9 x 10 D.C. 3 Drum with boiler: 1 Brand new Morrison, 1 Brand new Clyde.
1—8½ x 10 D.C. Single Drum Lambert Skeleton.
1—8½ x 10 D.C. 3 Drum Lambert Skeleton.
1—8¾ x 10 D.C. 3 Drum Monighan with boiler.
3—8¼ x 10 D.C., D.D. Reversible Link Motion with boiler: one Lambert; two Lidgerwood.
3—7 x 10 D.C. 3 Drum Hoists with Boilers: 1 American; 1 Mundy; 1 National.
19—7 x 10 D.C., D.D. with boiler; 1 American; 4 Lambert; 8 Lidgerwood; 1 O. & S.; 1 National; 1 Flory; 1 Mundy; 2 Crooke.
1—7 x 10 D.C., D.D. Skeleton Hoists; 1 Lidgerwoods; 2 Mundy; 1 National.
6—6¾ x 10 D.C., D.D. with boiler; 3 Mundy; 1 Flory; 2 National.
2—6¾ x 10 D.C., D.D. Skeleton: Mundy.
2—5½ x 8 D.C., D.D. American with boiler.
2—4¾ x 6 D.C. American Single Drum Reversible Hoists with boiler, with sheave for double platform elevator.
1—4½ x 6 D.C., D.D. Clyde Reversible Hoist.
1—50 hp. Thomas D.D. Hoist with 50 hp. A.C., 220 Volt, 60 Cycle, 3 Phase Wagner Slip Ring Type Motor.
1—10 hp. D.D. National Gasoline Hoist.
2—Holding Drums.

STEAM SHOVELS



2—Type A-1 Thew on traction wheels, one with long dipper stick for sewer work, one with ⅞ yard bucket for excavating or stripping.
3—Type O Thew Steam Shovels, on Traction Wheels, with ⅝ yard dipper.
1—Bucyrus 70 ton, on M.C.B. Standard Gauge Trucks, with 2½ yard dipper.

We have a large stock of miscellaneous equipment and also heavy equipment not listed in this AD. Write or wire your requirements.

Equipment Corporation of America

Philadelphia
655 Land Title Bldg.
Phone, Spruce 5498

CHICAGO, ILL.
1455 Lumber Exchange Bldg
Phone, Randolph 6586

Pittsburgh
855 Empire Bldg.
Phone, Court 2424

IT MAY BE HERE—

If so, write, wire or phone—at once
If not, tell us your requirements as this is only a partial list

CABLEWAY DRAGLINE

—9 x 12 Lidgerwood Cableway Dragline. Complete with 70 ft. Tower, 1½ yd. Dragline Bucket and A.S.M.E. Butt Strapped Boiler. Outfit is like new.

STEAM SHOVELS

1—Type B Erie ¾ yd. New 1919.
1—Model 28 Marion, ⅞ yd. dipper, traction wheels.
1—40 B. Bucyrus, 1½ yd. dipper, railroad trucks.
1—Model 60 Marion, 2 yd. dipper, railroad trucks.
1—Model 61 Marion, 2½ yd. dipper, railroad trucks.
2—70 C Bucyrus, 2½ yd. Dipper, railroad trucks. Excellent condition.

STONE CRUSHER

1—No. 4 Champion Portable Stone Crushing Plant, complete with Elevator, Screen and Bin. Mounted on wheels.

LOCOMOTIVES

1— 6 x 10 Vulcan, 36 in. gauge.
2— 9 x 14 Porter, 36 in. gauge.
2—10 x 16 Porter, 36 in. gauge.
1—10 x 16 Vulcan, 36 in. gauge.
1—11 x 16 Baldwin, 36 in. gauge.

SHEET PILING

100 tons Lackawanna, arch web ⅜ in. steel sheet piling. Lengths 10 ft. to 40 ft.

DREDGES

1—20 in. Suction Dredge.
2—16 in. Suction Dredges.
2—4 to 5 yd. Dipper Dredges.
1—3 yd. Dipper Dredge.

DERRICK BOATS

1—68 x 27 x 7 Hull, 10 x 12 Three Drum Lidgerwood hoisting engine with 7 x 9 Independent swinging engine, clam shell operating. Has "A" frame and 60 ft. boom.
1—114 ft. x 32 ft. 6 in. x 12 ft. "A" frame Derrick Boat. 66 ft. boom. 10 x 12 D.D. Lidgerwood Engine. Splendid condition.

DECK SCOWS

1—80 x 22 x 8, new.
2—80 x 25 x 8, excellent shape.
1—67 x 22 x 5½, fair shape.

DUMP SCOWS

3—650 cu. yd. Scows.
6—235 cu. yd. Scows.

BUCKETS

2—1 yd. Clam Shell.
1—1½ yd. Williams Clam Shell.
3—¾ to 1½ yd. Orange Peel.

WELL DRILLS

1—Sanderson-Cyclone Number 14 Traction 5⅝ in. hole, 500 ft. deep.

HOISTING ENGINES

1—5½ x 8 D.C., D.D. Skeleton.
1—7 x 10 D.C., D.D. Skeleton.
1—9 x 10 three drum, Skeleton.

TRAVELING DERRICK

1—Traveling Stiff Leg Derrick; 18-ft. gauge. Complete with 3-drum, 8¼ x 10 Flory Engine and Dake Swinging Engine; 26-ft. mast, 50-ft. boom, all wooden; steam operated; 1-yd. Haiss Clam-shell bucket. Excellent condition.

DERRICKS

1—Stiff leg derrick, 45 ft. mast, 70 ft. boom.
2—Guy derricks, 70-ft. mast, 70-ft. boom.
1—Guy derrick, 70 ft. mast, 60 ft. boom.

BOILER

1—32 hp. upright boiler, butt strapped, Massachusetts standard.

LOCOMOTIVE CRANE

1—30 ton McMyler, 8 wheel, standard gauge MCB, bucket operating, 70 ft boom. Rebuilt.

CARS

50—4 yd. Western two way dump, 36 in. gauge.

'Phone Locust, 4816 — *Write 'Phone—Wire*

1324 Widener Bldg. B. M. WEISS, Philadelphia, Penna.

FOR SALE

MACHINERY *and* EQUIPMENT

LOCOMOTIVE CRANES

1—15-20 ton Brownhoist 8-wheel M. C. B. 40 ft. boom, bucket operating drums.
1—15 ton American 8-wheel M. C. B. Single Line, 30-ft. beam.
1—15 ton Q & S 8 wheel, M. C. B., 70 ft. boom with 25 ft. removable section. Double power driven drums, also dragline attachments, equipped with outriggers.
New Locomotive Cranes on traction wheels, 30 ft. boom, ¾ yard bucket.

BYERS AUTO CRANES

1—Late type on Traction Wheels, 30-ft. Boom, ¾-yd. Bucket. Machine like new in condition.
1—Type 3 on caterpillar traction, 30 ft. boom, ¾ yard bucket. A1 condition.

REVOLVING TRACTION SHOVELS

1—Marion, Model 31, 1-yd. dipper, shop No. 3068.
1—Marion Model 28, ⅝ yd. dipper, shop No. 3328.

LOCOMOTIVES

American 6 wheel switcher. Cylinders 18 x 24-in. Drivers, wheel base, 11-ft. 6-in. Weight on drivers, 120,000 lb. Carries 150 lb. steam. Excellent condition. Just out of shop.

BOILERS

1—30 hp. locomotive type portable boiler and engine mounted on iron wheels with engine mounted on top of boiler.
1—50 hp. fire box, locomotive type, 100 lb. pressure.
1—70 hp. fire box, locomotive type, 100 lb. pressure.

PUMP

1—Swaby, direct connected to steam engine, 6-in. suction, 5-in. discharge.

CONCRETE MIXERS

2—Smith ½-yd. machines, no power, have large stationary batch hopper.
2—Smith No. 1 gasoline driven, on trucks.
2—Smith No. 11 steam driven, on trucks with side loaders.
1—Cube No. 11 steam driven, on trucks with side loader.
6—Cube No. 17 steam driven, on trucks with side loaders.

CARS

4—¾-yd. capacity, V-shaped, all steel, two-way dump, 18-in. gauge.
1—1-yd., V-shaped, all steel, two-way dump, 24 in. gauge.

DRAGLINES

3—Bucyrus Class 7 Draglines mounted on skids and rollers, 42-ft. booms, 1-yd. Page buckets. Can go into Canada duty free as they have been used there once before.

AIR COMPRESSORS

1—Gardner duplex steam driven size 10 x 10 x 12, capacity 326 cu.ft. free air per minute at 100 lb. pressure.
1—Norwalk two stage, steam driven air cylinder 17½-in., steam cylinder 24-in., stroke 30-in., 1659 ft. of air at 100-lb.

ROAD ROLLERS

1—Good Roads Machine Co. 10-ton tandem Steam Roller.
1—Monarch, Steam, 3-wheel, 10-ton.

HOISTING ENGINES

2—Byers, 16 hp. double cylinders, double drum, equipped with boilers, swinging gears.

MINE AND CABLEWAY HOISTS

1—Flory Skeleton, 8¼ x 10 D. C., D. D. link motion, with quadrant.
Lambert, 10½ x 12, double cylinder, single drum, 36-in. diameter, 24-in. face. Drum grooved; will take up ⅞-in. cable. Drum flanges 8 in. deep. Link motion.
Flory 10 x 12, double cylinder, double tandem drum engine, drums 40-in. diameter, 40-in. face. Operating levers banked in quadrant.

BUCKETS

1—1-yd. Page Dragline Bucket.
1—1¼-yd. clamshell bucket.
1—¾-yd. Orange Peel, 3 blades, for rock work.
1—1-yd. Clamshell Bucket.

STEAM PILE HAMMER

1—Cram Steam Hammer equipped for round piles, total weight about 8000 lb. Weight of Ram 5500-lb.

PIPE

1900 feet 6-in.
3200 feet 4 in.
3100 feet 2 in.
1700 feet 1½ in.

F. MAYER, 737-738 Monadnock Bldg., Chicago, Ill.

"Happy New Year"

CONTRACTORS' EQUIPMENT

HOISTS

1—6¼ x 8 O. & S. S.D., D.C. skeleton.
1—7 x 10 Lidgerwood S.D., D.C. skeleton.
1—6¼ x 10 Mundy D.D., D.C. boiler base.
3—8¼ x 10 Lidgerwood S.D., D.C. skeleton.
1—8¼ x 10 Mead Morrison D.D., D.C. skeleton.
1—10 x 12 American D.D., D.C. skeleton.
1—10 x 12 Rawson Morrison, 3 drum D.C. skeleton.
1—6¼ x 10 Mundy S.D., D.C. with boiler.
1—5½ x 10 Mundy D.D., D.C. with boiler.
1—7 x 10 Stroudsburg, D.D., D.C. with boiler.
1—7 x 10 Lambert D.D., D.C. with boiler and swinger.
1—8½ x 10 Lambert D.D., D.C. with boiler, reversible.
1—8¼ x 10 Lidgerwood D.D., D.C. with boiler, cableway.
1—25 hp. Lidgerwood electric, D.D., with swinger 220-volt D.C.
1—50 hp. American D.D., Westinghouse motor, 3 phase, 60 cycle, 220 volt.

CARS AND TRACK

6—½ yd. Radial dump mine cars, 24- in. gauge.
20—1 yd. and 1½ yd. Koppel cars, 24-in. gauge.
3,000 ft. 24-in. portable track 20 lb. rail new.
2000 ft. 24-in. portable track, 12-lb. rail.
10—Koppel flat cars, 36 in. gauge, new.

STEAM SHOVELS

1—Type "O" Thew ¾ yd. dipper, Massachusetts boiler.
1—Model 28, Marion.
1—18B Bucyrus ⅞ yd. Massachusetts boiler.
1—14 B Bucyrus ¾-yd. dipper.

BOILERS

1—20 hp. Vertical, lap seam, double riveted, 100 lb.
1—40 hp. Vertical, lap seam, double riveted, 100 lb.
1—50 hp. Vertical, lap seam, double riveted, 100 lb.
1—80 hp. Ames vertical, Mass. Std., 110 lb.
1—15 hp. Porter Loco. Type, on wheels, lap seam.
1—40 hp. Ames Loco. Type, on wheels, lap seam, single riveted, 80 lb.
1—100 hp. Erie Loco. Type, butt strap joints, triple riveted, 100 lb.
2—150 hp. H.R.T. Boiler, butt strap, triple riveted, 100 lb.

LOCOMOTIVES

1—3-ton Bell Locomotive, 24-in. gauge.
3—18-ton Vulcan Saddle Tank, 36-in. gauge.
1—6-ton Bell, oil burning, standard gauge.
2—6-ton Plymouth, 24-in. gauge.
1—5-ton Milwaukee, 24-in. gauge, rebuilt.
1—3 ton Plymouth 24-in. gauge.

MIXERS

1—27-S Chain Belt, 220 Volt D.C. Motor.
1—14-S Koehring, 220 volt D.C. Motor.
1—14-S Smith, steam engine, on truck.
1—27-S Smith, steam engine, power dumping.
1—7-S Knickerbocker, low charge, gasoline.
1—14-S Ransome, low charge, gasoline.
1—7-S International, low charge, gasoline.
1—5-S Polygon, power loader, gasoline.
1—14-S Ransome, low charge, without power.

STREET PAVERS

2—Koehring, cap. 22 cu.ft., dry, boom and bucket.
1—Koehring, cap. 14 cu.ft. dry, boom and bucket.
1—21E Koehring, caterpillar traction, power derrick and batch meter, Never used.
3—14-E Rex, boom and bucket, batch meter, one year old.
1—14-E Austin, caterpillar traction, batch meter.
1—10-E Austin, boom and bucket discharge.

ROAD ROLLERS

1—10-ton Buffalo-Pitts 3 wheel.
1—10-ton Universal Tandem.
2—8-ton Buffalo-Pitts Tandem.
3—6-ton Buffalo-Pitts Tandem.
1—3½-ton Universal Tandem.

PUMPS

1—Worthington Duplex, 6 x 4 x 6, brass fitted.
1—Worthington Duplex, 14 x 12 x 10, 6-in. suction, 6-in. discharge.
1—Worthington Duplex, 18½ x 12 x 10, 10-in. suction, 8-in. discharge.
Cameron Steam Pumps, all sizes.
2—No. 6 Pulsometers, 4-in. suction, 3½-in. discharge.
2—Allis Chalmers Centrifugal, 2 stage, 6-in. suction, 3-in. discharge for motor drive.
1—Lawrence Centrifugal, 8-in. suction, 6-in. discharge, direct connected to 6-in. x 6-in. steam engine.
1—Morris Centrifugal, dredging, 12-in. suction, 12-in. discharge, direct connected to Twin Vert. Steam Engines.

Large number gasoline driven force pumps, and diaphragm pumps, both new and rebuilt.

Boston Office
Old South Building
Main 4233

The HUBBARD-FLOYD CO., Inc.

MAIN OFFICE
Grand Central Palace
New York, N. Y.
Vanderbilt 1465

Machinery For Sale

1—Byers **Auto-Crane,** one year old. $4000.

1—Larrabee, 2½ ton **Dump Truck,** wood hydraulic Hoist, 2-yard body, 6 months old, for $3500.

H. W. FITZ GERALD
611 Press Bldg., Binghamton, N. Y.

EXCAVATOR

No. 3 Keystone. Used about two months. All tools and extra parts. One extra bottom for skimmer scoop. Also ditching scoop, never used.

DAVID SCHOENTAG
Saugerties, N. Y.

FOR SALE

1—¾ yd. Smith **electric mixer** with batch hopper, 15 hp. direct current motor, on skids, new 1919, in excellent condition.

1—Link-Belt **wagon loader,** type DS., fitted either with gasoline or electric motor, or without power.

Several 10 cubic foot *Mixers, gasoline, engines,* with or without power loaders. Both new and used.

All the above is for sale or rent at bargain prices. Let us quote you.

PARSONS ENGINEERING & MACHINERY CORP.
Construction and Industrial Equipment
18 West 34th Street, New York
Telephone: Pennsylvania 1662

FOR SALE

1—**Ransome Mixer** on Skids with Batch Hopper, Steam Engine only, capacity of mixed concrete 10 cu. ft. This machine is practically new.

1—5A used Foote Road Wheel Traction Paver.

3—6A used Foote Road Wheel Traction Pavers, all with Spouts and all in good working condition.

Will make special price for entire lot to machinery houses. These machines are all for immediate delivery and at bargain prices.

C. C. DAWSON
613 Republic Bldg., Kansas City, Mo.

Williams' Patent Crusher Number 10

Priced at one-quarter of its present-day value.

USED ONLY ONE WEEK

Hammer breaker.
Capacity 300 tons per eight hours.

Wire for price and photostat

Du Pont Chemical Co.
Wilmington, Delaware

FOR SALE

2—**8-Centrifugal Pumps.** 8 in. Special Type DSMB American Well Works Co.'s double suction, horizontal, split, volute, single stage, with casing webbed to withstand 250 lb. pressure, pumps fitted with bronze impellers of the enclosed type, with labyrinth wearing rings, bronze shaft sleeves and glands — Pumps are mounted on heavy cast iron bases and are arranged for direct connection for motor drive to

2—**75 H.P. Lincoln Motors,** 1800 R.P.M. 2 phase, 60 cycle, 220 volts, squirrel cage, induction type.

2—**Starting Compensators** with under voltage release for 75 H.P. motors.

2—**I.T.E. Circuit Breakers,** type W, 4 pole, 2 phase, 220 volt, 60 cycle, 200 ampere rated capacity, with range of adjustment 200 to 400 amp. 2 coil — Additional features are — No voltage release, non-closeable on overload, and inverse time element.

2—**Sluice Gates**—20 in. x 24 in. bronze mounted, with operating stand.

2—**G. E. Transformers**—200 Kw., type H, 60 cycle, 2200 Volts, primary, 110 to 220 Volts secondary — multiple.

All Brand New.

THE BARRETT COMPANY
Chemical Department
Frankford, Philadelphia, Pa.

LOCOMOTIVES

7 x 10 cyl. 36-in. gage Vulcan Saddle Tank.

7 x 12 cyl. 36 in. gage Davenport Saddle Tank.

CARS

15—Western 4 yd. 36 in. gage dump.
6—41 ft. 100,000 lb. capacity gondolas.

STEAM SHOVELS

2—⅝ yd. Thew "O" Traction.

ZELNICKER IN ST. LOUIS

Get our big Bulletin 285.

FOR SALE OR RENT

1—Type J35 Ton McMyler Interstate Crane 50 ft. Boom.
1—Type B20 Ton McMyler Interstate Crane, new in 1919, Located in Kansas City, Mo.
9—12 yd. Standard Gauge Western Dump Cars.
1—Std. Ga. Western Spreader Car.
1—10 Ton Kelley-Springfield Road Roller.
3—3 Ton 24 in. Ga. Plymouth Gasoline Locomotives, practically new.
1—New No. 44 1 yd. Koehring Mixer, Batch Hopper and Boiler.
1—Type "B" Erie Shovel ¾ yd. Bucket.
1—Type A-1 Thew Shovel ⅜ yd. Dipper.
1—Type A-1 Thew Shovel—28 ft. dipper stick—Lattice boom equipped for clam shell work.
1—Parsons Trench Excavator Model "E"
1—New 9 x 10—3 drum Clyde Hoist with 125 lbs. pressure A.S.M.E. Boiler.
1—Model 28-S Lakewood Milwaukee steam mixer, 40 cu.ft. cap. Batch Hopper and water tank, without boiler.
2—No. 2 Vulcan Steam Hammers.
Quantity 24 in. I-Beams 60-70 ft. long.
150 Tons Lackawanna Steel sheet piling 14-28 ft. long.
Large quantity 1½ yd. Lakewood and Koppel "V" shape dump cars and 24 in. gauge track.

MAJORITY OF ABOVE EQUIPMENT PURCHASED NEW DURING 1919 and 1920.

THE CLEVELAND EQUIPMENT & REPAIR CO.
8701 Union Ave., Cleveland, O.

ROAD BUILDING EQUIPMENT

1—Thew **Steam Shovel** A1, ⅜ yd. Dipper.
1—Acme No. 10½D **Stone Crushing Outfit.** Complete with Farquhar Boiler, Elevator, Screens, and 50 Ton Knockdown Bin.
1—Acme No. 9A **Stone Crushing Outfit.** Complete with same equipment as above.
1—International No. 3 **Stone Crushing Outfit** with same Equipment except 50 Ton Portable Bin.
1—Schramm **Air Compressor Outfit** No. 2 Truck mounted with Jap drill and steel.
1—McKiernan-Terry No. 5 **Steam Sheet Piling Hammer** with Gantry Crane and Hoist.

DALE ENGINEERING CO.
Utica, N. Y.

LOCOMOTIVE CRANES

1—used Wide Gage McMyler—35 tons capacity, 50 ft. boom. Bucket handling. Now working in N. J.
1—used 20-ton OHIO. Std. gage. D.D.54 in. boiler. 50 ft. boom.

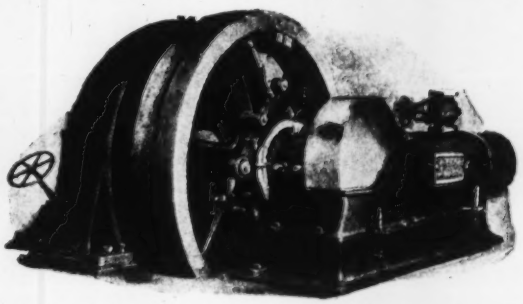
CLAMSHELL BUCKETS

4—new 1½ cu. yd. Lakewoods.
1—used 1½ cu. yd. Mead-Morrison.
1—used Baldwin Locomotive, std. gage, 6-wheeler.
All equipment ready for immediate delivery.

TITAN EQUIPMENT COMPANY
30 Church Street, New York, N. Y.
Phone Cortlandt 1111.

GENERATING UNIT

100 KW



125 Volt

100 KW., 250 R.P.M., SPRAGUE 125 volt, 2-wire Compound Wound D.C. Generator, direct connected to—
16 x 15 Left Hand HARRISBURG Side Crank Enclosed Self-Oiling Automatic Engine, complete with switchboard and instruments.
Has had little service, is thoroughly inspected and overhauled, and subject to any rigid inspection at our Jersey City Works.

CHAS. F. AMES & CO.
90 WEST STREET Telephone, Rector 6948 **NEW YORK CITY**

FOR SALE
DREDGE
1—Clam Shell bucket, 3 yard capacity. Engines N. B. CUSHINGS 16-in. x 24-in., in fine condition, for sale cheap.
JOHN WILLIAM SCHAFER
452—15 Street, Brooklyn.
Phone: South 5109.

One Erie
TRACTION SHOVEL
type B ¾ yd. dipper. 20 Teams double harness and dumpers.
McCABE BROS.
1205 Boulevard, Bayonne, N. J.

Some One Wants to Buy

the equipment or machinery that you are not using. This may be occupying valuable space, collecting dust, rust and hard knocks in your shops and yards.

Sell It Before Depreciation Scraps It
THE SEARCHLIGHT SECTION IS HELPING OTHERS
Let It Help You Also

0209

Pumps—Presses—Fittings

FOR 2500 LBS. PER SQUARE INCH PRESSURE

5—Southwark Foundry & Machine Co., Presses, 300 Ton
4—Hydraulic Press Mfg. Co., Presses - - - 300 Ton
6—Boomer & Boschert Presses - - - - - 250 Ton
1—8 in. x 10 in. 3000 lb. pressure Accumulator

2—2½ in. x 15 in. Blake Duplex 3000 lb. motor driven hydraulic pumps.
1—2½ in. x 12 in. Watson Stillman Duplex 3000 lb. motor driven pump.
1—4 in. x 18 in. Deane Duplex 1500 lb. motor driven hydraulic pump.

**Large Quantity Valves, Fittings, Piping—All for 2500 lbs. working pressure.
Now partially erected and in fine condition. May be inspected in Brooklyn.
Prices far below present market. For information, address**

Gillespie Bros. & Co., 135 Front St., New York Telephone John-2805

SEARCHLIGHT SERVICE:

LOCOMOTIVE

"Entirely pleased with advertisement—Just sold a Locomotive to City of St. Louis through News-Record."
Indianapolis Dealer

DREDGE

"Small ad offering an iron suction Dredge for sale resulted in my selling not only the dredge advertised but also another one of the same type since."
Private Owner—Canada

CRANES

"Pleased to advise that the Cranes we advertised in your paper were sold as a result of the advertisement."
New York Dealer

CABLEWAY

"Sold a large Cableway from one insertion of Searchlight advertising."
Contractor—Vermont

STEAM SHOVEL

"Wanted to sell two Steam Shovels. A one-inch Searchlight ad produced enough inquiries to sell a dozen."
Dealer—Boston

RESULTS!

0199

Locomotive Crane
Just Released

For Sale by

HERCULES POWDER CO.

Construction work at our Hattiesburg, Miss., plant has just been completed. The Crane which we purchased for the job several months ago is now surplus. A big saving awaits a quick buyer.

1—20-ton American Locomotive Crane; serial No. 915; 8-wheel truck to operate on standard gauge track; full MCB equipment including air brakes; also 35-ft. boom. Excellent working condition.

For further information, address

XMS DIVISION

HERCULES POWDER CO.

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2—Practically New 14-B **Bucyrus Steam Shovels.** Special Long Boom, Shop Nos. 3339 and 3340.
1—70-C **Bucyrus Steam Shovel,** Shop No. 1245, 2½ yard dipper, located at Indianapolis.
2—35-ton **Four Wheel Rogers Switchers.**
1—Sixty-ton Six Wheel **Switcher.**
1—Ten-wheel Baldwin **Locomotive.**
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Incorporated
139 North Clark Street, Chicago, Ill.

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1—Holt Caterpillar Tractor, latest improved, 40-60, ten ton.
12—5 ton Troy Trailers.
1—Class 7 Bucyrus Dragline, on Caterpillars, 42 ft. boom, 1-yd. bucket.
1—Class 14 Bucyrus Dragline, 60 ft. boom, skids and rollers, 2-yard bucket.
1—Class 20 Bucyrus Dragline, 85 ft. boom, 2½-yd. bucket, skids and rollers.
2—Class 24 Bucyrus Drag Lines, 100 ft. booms, 3½-yard buckets, skids and rollers.
2—9 x 14 Vulcan Saddle Tank Locomotives, 36 in. Gauge, Shop Nos. 1673 and 1675.
1—11 x 16 Vulcan Saddle Tank Locomotive, Standard Gauge, Shop No. 1087.
1—18B Bucyrus Steam Shovel, traction wheels, ⅞ yard dipper, Shop No. 2182.

BECK & BABB
29 SOUTH LA SALLE ST., CHICAGO

FOR SALE
STEAM HOISTS
4—MUNDY DC. SD., 7 x 10 in. cylinders, DRUMS 16 in. dia., by 22 in. inside with 8 in. flanges, condition new, used only TWO WEEKS; PRICE for quick turn $650.00 each.
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Regular Drive—Guaranteed

75 H.P. FLORY ELEC. HOIST
440 V., 60 Cy., 3 Ph. A.C. slip ring motor

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DUMP CARS
6 yd. K. & J. Good Ones: Steel Plate in Beds Thoroughly Rebuilt. Also 20—4 yd. 36 in. Gage.
PECKHAM & CO.
960 Leader-News Bldg., Cleveland, Ohio

Sound Plant in Good Operating Condition For Sale

CARS
10—Standard gage, 6-yd. Peteler Dump Cars.
20—12 yd. Western dump cars.
14—4 yd. Western dump cars.
9—Pairs Wheels and Axles for heavy duty 4-yd., Western dump cars.

LOCOMOTIVES
2—9 x 14, 13-ton, H. K. Porter, Dinkeys, 36-in. gage.
1—10 x 16, 18-ton H. K. Porter, Dinkey, 36 in. gage.
1—10 x 16, 18-ton Vulcan Dinkey, 36-in. gage.
1—15 x 24-in., 30-ton, 4-wheeled, standard gage, switcher.
1—18 x 24 in. fifty ton, 6-wheeled Switch engine.

BOILERS
1—30-hp. Vertical. For 100 pounds working pressure.
1—45-hp. Loco Type Skids.
1—35 hp. on wheels.

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6—Sullivan Y8 Channelling Machines.

TOOL STEEL
2 tons Black Diamond flat tool steel.

TRUCKS
6—4-wheeled House Moving Trucks.
3—Heavy Machinery Trucks.

COMPRESSORS
1—18 x 18¼ x 24 Ingersoll-Sargent Steam Driven, straight line.
1—Sullivan 2 stage Belt Driven, 887 ft. cap.
1—12 x 12 x 16 Rand Duplex, Steam Driven.
2—Westinghouse 9½-in., steam operated.
1—Westinghouse compound.

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1600 sq. ft. of Blaw Panel Forms.

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10—From 1 to 50 hp. Stationary Steam Engines.
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18—Bottom dump Concrete Buckets, 1¼ to 2½-yd. capacity.

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1—60-kw. Belt Driven Generator (Woods).
1—30 Kva. Wagner high efficiency Transformer, 2200 volts, primary 440-220-110 volts, secondary with 5 and 10%.

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10—Force Pumps—from 20 to 600 gals. per min. capacity.
1—18½ x 9¼ x 10 Worthington Fire Pump.
1—20 in. belt drive Worthington Turbine.
1—18 in. Morris connected direct to double vertical steam engine.
1—10 in. belt driven double suction volute.

STEAM SHOVELS
6—Steel Skips, extra strong, 1-yd. capacity.
6—Steel Skips, extra strong, 1½-yd. capacity.
3—70 ton Atlantic type 2½ yd. dippers.
1—Model "K" Marion 3½ yd. dipper.
3—Model 20 Marion 1¼ yd. dippers.

DRAGLINES
1—Class 20 Bucyrus Dragline.
1—No. 1. Lidgerwood Dragline.
1—No. 1 Clyde Dragline.

ROCK DRILLS
50—Tripod rock drills, steam or air operated.
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All thoroughly overhauled and ready for immediate and constant service.

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DIRECT FROM THE MAKER

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OWNED BY US AND SOLD UNDER ABSOLUTE GUARANTEE SUBJECT TO TRAIL IN SERVICE

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60—16 yd. standard gauge Western Air Dump Cars, steel underframes, box girder doors, U. S. Safety Appliance standard.
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12—4 yd. 36 in. gauge Western Side Dump Cars.
2—Western 36-in. gauge Spreader Cars.

STEAM SHOVELS
1—Bucyrus 18-B, full revolving steam shovel, shop No. 1870, mounted on traction wheels, ⅞ yd. dipper.
4—70-C Bucyrus, Shop Nos. 1160, 1331, numbers 1776, 1899, 2400, 2½ yd. 1371, 1472, 2½-yd. dippers.
3—Model 60 Marion Steam Shovels, shop dippers with full manganese face; butt strap boilers. Shovels complete with tools and work rail sections.
1—65-ton Bucyrus, Shop No. 349, 2½-yd. dipper.

COMPRESSORS
1—20 x 22¼ x 15¼ x 21 AA-2 Ingersoll-Rand Compressor; 1600-ft. capacity
1—16 x 16 x 18-in. Laidlaw-Dunn-Gordon Air Comp., with reservoir; weight 15,000 lb.

LOCOMOTIVES
1—Standard gauge 14 x 20 cylinder, Vulcan, 4 wheels, saddle tank Locomotive, Shop No. 1501; weight 40 tons; automatic couplers; air brakes.
1—Standard gauge 16 x 24 cylinder, 4-wheeled, saddle tank Locomotive, built by American Locomotive Wks. in 1907, Shop No. 44337, weight 43 tons; air brakes, automatic couplers.
1—Standard gauge, 16 x 24 cylinder, 4 wheeled switcher with separate tender; class J-3 C. M. & St. P. Ry. Weight 35 tons.
2—Standard gauge, 16 x 24 cylinder 6 wheeled switchers, built in 1910 by Baldwin Locomotive Works; 180 lbs. steam pressure; weight 43 tons on drivers.
1—Standard gauge, 18 x 24 cylinder, 6-wheeled, switching locomotive, with separate tender; weight 50 tons on drivers.
1—Standard gauge, 10 x 16 Cylinder Porter, 4-wheels, saddle tank Locomotive; air brakes, automatic couplers; weight 19 tons.
2—36 in. ga. 10 x 16 cylinder Porter 18 ton saddle tank Locomotives; Shop numbers 4615 and 5065; extended saddle tank, wide fire box, steam brakes and modern equipment.
1—36 in. ga. 11 x 16 cylinder Vulcan 21 ton saddle tank Locomotive; Shop number 1865, butt strap boiler, air brake equipment.
1—36 in. gauge, 10 x 16 American saddle tank Locomotive, weight 18 tons.
1—36 in gauge 9 x 14 cylinder Vulcan 13 ton Saddle Tank Locomotive, steam brakes.

DRAGLINE EXCAVATORS
1—No. 3T Monighan Walker type, all steel, steam operated Dragline; 60 ft. boom with 15 ft. extension; 2 yd. to 3 yd. bucket.
1—Class 14 Bucyrus, steam operated, all steel dragline, 60 ft. boom, 2 yd. Page bucket, mounted on skids and rollers.
1—No. 2 Monighan steam operated, all steel Dragline, 60 ft. boom; 2 yd. Page bucket, mounted on skids and rollers.
1—Class B Lidgerwood all steel dragline; Shop number 164; 60 ft. boom, 1½ yd. Page bucket; mounted on skids and rollers.
3—Class 7, Bucyrus Draglines, Shop Nos. 798, 799, 827; steam operated, all steel construction 42 ft. booms; 1 yd. Page buckets, mounted on skids and rollers.

CLAPP, NORSTROM & RILEY EQUIPMENT CO., 12 and 14 So. Canal St., Chicago

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2000 ft. WC Sullivan, steam.
1825 ft. Rand Corliss, steam 30 lb. air.
2—1666 ft. XPV-4 Ingersoll, steam, 70 lb. air.
2—1575 ft. Rand Corliss, steam, 25 lb. air.
1190 ft. X-3 Ingersoll, steam.
557 ft. WB-2 Sullivan, steam.
396 ft. WB-2 Sullivan, steam.
160 ft. X-2 Ingersoll, steam.
2—345 ft. WA-5 Sullivan, steam, **new.**
2650 ft. WN-4 Sullivan Electric Driven, **new.**
1190 ft. XB-2 Ingersoll, belt.
888 ft. XB-2 Ingersoll, belt, **new.**
599 ft. XB-2 Ingersoll, belt, **new.**
464 ft. ER-1 Ingersoll, belt.
179 ft. NE-1 Ingersoll, belt.

BOILERS

8—350 hp. B & W Boilers, 160 lb.
3—200 hp. Mass. Std. HRT Boilers, 160 lb.
1—100 hp. HRT Dillon Boiler, 100 lb. Mass.
1—60 hp. Ames Locomotive Portable Boiler, 105 lb. Conn.
1—40 hp. Ames Locomotive Type Boiler, 100 lb. Mass.

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10 High Street, Boston, Mass.

PLANT FOR SALE

We own and offer, subject to prior sale or withdrawal, the following plant:

1—Sullivan Cross Compound Compressor, 120 lb. pressure, Class W N O 2, direct connected to 1—400 horsepower Westinghouse Motor, 6600 v., 3 phase, 25 cycle.

10—Ingersoll-Rand, 28 in. x 24 in., Class P R E-1 Compressors, 45 lb. pressure, with aftercoolers, direct connected to

10—Westinghouse Motors, 600 horsepower, 6600 v., 3 phase, 25 cycle.

O'ROURKE ENGINEERING CONSTRUCTION COMPANY
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1—200 hp. High Pressure Scotch Marine Boiler. Priced to sell.

FS728 Engr. News-Record
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FOR SALE

1—8 x 8 Ingersoll Compressor connected to one 15 hp. Nove Engine mounted on wheels, 100 lb. pressure.
1—10 x 10 Ingersoll Straight Line Steam Compressor for 100 lb. pressure.
1—Type A-1 Thew Shovel No. 1367.
1—Good Roads Machinery Bucket.
Elevator 28 ft. long with track hopper.
All above equipment in very good condition ready for immediate delivery.

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No. 8 and No. 9 GATES CRUSHER REG. DRIVE
2—150 hp. 125 lbs. HRT boilers, butt strap.
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Air compressors (steam belt) 50 to 1,000 ft.
40 boilers 60-150 hp., 100-130 lbs.
75 H.P. LOCO. BOILER, 125 lbs.
4—NEW No. 4 Gates, Mang. Fit., $2,000 each.
10 coils Roebling ⅝ in. traction cable (used).
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Type "O" ¾ yd. Thew steam shovel.
50, 25, 20, 15 and 125 kw. engine and turbos.
1—42 x 16 in. TRALYOR ROLL CRUSHER.
2—156 kva., 240 v., 60 cy., 3 ph. engine sets, 50 kw., 125 v. Dir. Cur. Eng. set, $800.

Send us your inquiries—Pumps, Steam and Electric Equipment Etc.

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1—Lidgerwood special 12 x 12 cableway engine, shop No. 30093-4 with cable and carrier.

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1—Gyratory No. 6-F with fittings.

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Air Compressors

1—70 cu. ft. Fairbanks Morse Gasoline Compressor on wheels.
1—525 cu. ft. Laidlaw-Dunn-Gordon Compound.
1—1600 cu. ft. Ingersoll Compound.
1—800 cu. ft. Ingersoll Compound.
2—300 cu. ft. Laidlaw-Dunn-Gordon Simple.
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We offer subject to prior sale the following used boilers:

10—B & W 275 hp., 125 lb. pressure.
12—Sotter Bros. 140 hp., return tubular, 90 lb. pressure.

Chief Engineer's Office

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250 H.P. High Press Marine Boiler.
250 H.P. Allis Chalmers Corliss Engine
150 H.P. High Press. Return Tubular Boiler.
558 cu. ft. Steam Driven Sullivan Air Compressor.
10 x 12 Atlas Second Motion Mine Hoist.
1000 lb. Niles Steam Hammer.
26-in. x 14-ft. 0-in. Reed Lathe.

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What are your requirements?

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LOCOMOTIVE—25-TON

36 in. Gage; 4-D Saddle Tank; good one. Rebuilt now.
Also 20 Ton 36 in. G. Baldwin, 36 in.

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We have a 90 hp. Boiler which passed Hartford Inspection at 75 lb. pressure this month. Suitable for heating purposes and in first class condition. Complete with all fittings, except stack, at $600.00 F.O.B. Cars Milwaukee. Wire, 'phone or write.

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ONE STEEL STACK

125 ft. high, 4 ft. 2 in. diameter, ¼ in. plate. Fine condition. Also breeching. Easily set up complete. Price reasonable.

Address Inquiries Purchasing Dept.,
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2—183 foot Chicago Pneumatic, Kerosene
1—120 foot Schramm, Gasolene
3—105 foot Chicago Pneumatic, Gasolene
1—90 foot Chicago Pneumatic Gasolene.
All on wheels
2—150 foot Westinghouse steam

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LARGE STOCK. ALL SIZES.

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30,000 ft., 1 in.
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8000 ft., 1½ in.
70,000 ft., 2 in.
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Completely overhauled with new threads and couplings. Also Boilers, Tanks and Rails.

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About 200 tons new pipe, size 4 in. to 30 in. with approximately 150 tons of specials and valves, for shipment from stock and at attractive prices.

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Large stock, all sizes.

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High Pressure Hydraulic Fittings For 2500-lb. Working Pressure

SIZES (½ inch to 6 inches)

VALVES (Balanced stops and operating) for 2500 lb. pressure.

TEES (3,000 lb.) **ELBOWS (3,000 lb.)**

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With new threads and couplings; also cut to sketch.

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1—No. 12 **Koehring Paver** with steam power, boom and bucket, used one week.

1—New 1½ yard Hayward Orange Peel **Bucket.**

4—1¼ yard Lakewood Clam Shell **Buckets.**

1—75 hp. Thomas D. D. Electric **Hoist** 3 phase 60 cycle 220 volts.

1—50 hp. Thomas D. D. Electric **Hoist** 3 phase 60 cycles 220 volts.

1—25 hp. Clyde S.D. Electric **Hoist,** 3 phase, 60 cycle, 220 volts.

1—100 hp. Thomas D. D. Electric **Hoist** 240 volts D. C.

1—25 hp. Lidgerwood D. D. Electric **Hoist** 240 volts D. C.

2—40 hp. Fire Box **Boilers** on Wheels.

2—50 hp. Fire Box **Boilers.**

1—16 x 18 x 11 x 16 Sullivan Steam Driven **Air Compressor.**

1—19 x 12 x 16 Ingersoll-Rand Imperial type belt driven **Air Compressor,** with or without Motor.

1—450 ft. Sullivan Class W.J.3 angle compound belt driven **Air Compressor,** with or without Motor.

1—Chicago Pneumatic Tool Co. 2 stage belt driven **Air Compressor** 628 cubic feet.

1—10 x 12 Chicago Pneumatic Tool Co. belt driven **Air Compressor** with or without Motor.

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Two Type S, General Electric Company. Ahead and astern turbine carried on one shaft in the same casing. The ahead turbine developing 2500 hp. at 3234 r.p.m., when supplied with steam at 200 gage and 50° super-heat at first stage bowl, working against 28½ in. vacuum. Astern turbine developing 1650 hp. when running at 2050 r.p.m., supplied with steam conditions as mentioned for ahead turbine.

Five stages in head turbine and two for reversing unit.

TWO MANEUVERING VALVES complete, consisting of Duplex Valve with horizontal spindle, of balance type operated by two levers mechanically interlocking, making it impossible to open but one valve at a time.

EMERGENCY VALVE with Steam Strainer.

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The above units have been in service less than three years, have been well taken care of, and are in excellent condition. Can be inspected and prices quoted at

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1—30 ton **Terry Steel Derrick** 65 ft. boom, 75 ft. mast complete with guys turn buckles and bull wheel. Price $3800.

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1—76-ft. boom, American Hoist wood **skid derrick,** similar to cut 805, page 119 American Hoist & Derrick Co. catalogue. $2000.

1—1½-yd. **Class S, Page Drag Line Bucket,** $650 f.o.b. our yard.

6—1½-yd. **Koppel Bottom Dump Buckets,** $100 each f.o.b. our yard.

2—No. 641 D.S. 1¾-yd. Lakewood Handler **Clam Shell Buckets,** A1 condition, $850 each f.o.b. our yard.

1—2-yd. **Sauerman scraper bucket** with blocks and shackles. $1.000.

2—Size 28, one-yd. Lakewood **concrete mixers** with steam engines and batch hoppers, $2.000 each, f.o.b. our yard.

1—15-Hp. **Port Huron Tractor,** $600 f.o.b. our yard.

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Browning: 35-ft. Boom, 15 Ton.
Industrial: 35-ft. Boom, 10 Ton.

Good Cranes—Rebuilt

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Byers Auto Crane Model C, ¾ yd. clam shell.
Thew steam traction shovel ⅝ yd.
8000 ft. 24 in. gauge portable track 20 lb.
Whitcomb 24 in. gauge locomotive.
Austin 2 bag paver, caterpillar.
Holt caterpillar tractor 45 hp.
3 Port Huron all steel trailers.
Roller, 3 wheel, 10 ton.
National road grader 10-ft. blade.
Sturtevant rolls 20 x 14.
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65 ton Bucyrus railroad shovel ½ yd.
7000 ft. 2-in. waterpipe.
Derricks (stiff leg and guy).
⅝ yd. Hayward orange peel bucket.
16 x 24 stand, gauge 40 ton locomotive.
12 x 14 Climax geared stand, gauge locomotive.
50 Koppel cars 1¼ yd., 24-in. gauge.
Derrick car, stand, gauge.
Jaw crusher, 9 x 16.
American Ring Roll mill.

Daniel B. Straley, Crown Point, Ind.

HOISTS

1—8 x 12 double cylinder, double drum Mundy Hoist with 4 independent spools butt strapped boiler.

1—8 hp. single drum, double cylinder, Byers Builders Hoist.

1—16 hp. double drum, double cylinder Byers Hoist.

1—7 x 10 double cylinder, double drum Lidgerwood Hoist.

1—7 x 10 double cylinder, double drum, Mead-Morrison Hoisting Engine.

EMPIRE ENGINEERING & EQUIPMENT CO.
Empire Building, Pittsburgh, Pa.

FOR SALE

1—25 ton, electric

Traveling Crane

or hoist symbol made by Niles-Bement-Pond Co.; center to center of runway rails, 78 ft. 4 in.; approximate vertical travel of hook, 24 ft.

United Electric Light Co.
Springfield, Mass.

1—Koehring Paver, size 14.
1—20-in. Hydraulic dredge.
21—K. & J. Std. gage 6 yd. dump cars.
4—36 in. Gage Vulcan locomotives.
Bucyrus shovels: 70 and 65 ton.
Marion 60 shovel.
2—Floating derricks.
1—Traveling derrick with 3-drum 9 x 10 engine.
Hoisting engines: Mundy 8½ x 13 and 7¼ x 10.
Hayward Orange Peel buckets, 1 yd. and 3 yd.
Clamshell buckets: ¾ yd., 1 yd. and 1½ yd.
10 and 15 ton Locomotive crane.
75 ton 30 ft. Lack. A-Web Piling.

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THREE-DRUM HOIST BARGAIN

Quick shipment 3 Drum 8¼ x 10 Lambert Hoist, complete with Swinger and Lap Joint Boiler. Bargain Price for Cash. Like New. Wire, write or phone:

HUNTER MACHINERY COMPANY
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FOR SALE

Boom for Locomotive Crane

70 ft. Long: Same as New.
Steel Lattice: Extra Bracing Built for 20-25 Ton Crane Width Base Connections 52 in. Also 10 Ton, 4-w. Industrial Crane.

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HOISTS

Compressors—Boilers—Mixers
Derricks—Cableways

See list in issue of Feb. 12.

HOISTING ENGINE SALES COMPANY
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P & H Caterpillar Crane
BARGAIN

We have No. 205 outfit, used only four months, like new, complete with one-half yard Power Wheel Bucket, F.O.B. Cars. For bargain price 'phone, wire or write.

HUNTER MACHINERY COMPANY
208-210 Wells Street, Milwaukee, Wisc.

Guaranteed Equipment for Contractors AVAILABLE AT ONCE

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STANDARD GAUGE

2—95-ton Bucyrus railroad type, 5-yd. dipper, 90 per cent new.
10—70-ton Bucyrus railroad type, 2½-3-yd. dipper 90 per cent new.

LOCOMOTIVES
STANDARD GAUGE

2—63-ton Mogul, 2-6-0 type, built by American Locomotive Works, 95 per cent new. Standard gauge.

HOISTING ENGINES

1—8 ¼ x 10-in. Clyde, double cylinder, double drum Hoisting Engine, with boiler.
1—9 x 10-in. Russell, double cylinder, double drum Hoisting Engine, heavy duty type, without boiler.
4—7 ½ x 10-in., double cylinder, single geared Drum Hoisting Engine, with reversing throttle valves.

DUMP CARS
STANDARD GAUGE

150—12-yd. Western & Oliver all-steel, two-way Dump Cars. Standard gauge.
50—1 ¼-yd. 20-in. gauge, wood body, two-way Dump Cars.
3—36-in. gauge, 8-wheel Flat Cars, 40,000 lb. cap., 7-ft. wide, 20-ft. long, wheels 24-in. diam.

MISCELLANEOUS EQUIPMENT

7—Westinghouse, 250-hp. Motors, Type C.C.L., 440-volt, 60-cycle, 3-phase motors. Speed 514 r.p.m., with base and starters. Can be furnished with pulley or flange coupling.
1—10-ton, 3-wheel Steam Road Roller.
1—No. 1 Chicago Concrete Batch Mixer, with Steam Roller and Engine on wheels.
17—½-yd. Bottom Dump Concrete Carts.
50—1 ½-yd. All Steel Bottom Dump Buckets.
27—Hydraulic Tunnel Jacks, 8¼ in. diam. ram, 32 in. stroke.
1—No. 7 ½ Austin Gyratory Stone Crusher.
1—12 x 24-in. Reliance Jaw Crusher.
1—3-ton American, 4-wheel Locomotive Crane, standard gage, 24-ft. boom.

CORRUGATED STEEL SHEETS
NEW

500—Squares 12-gauge 5 in. corrugations, O. H. Curved Steel Sheets (four forming a circle).
100 Squares 12 gauge 5 in. corrugations, O. H. Flat Steel Sheets.
3000—Squares, 22 gauge, 2 ½ in. corrugations. Width 27 ½ in., length 7 ft. and 10 ft.

BOILERS

1—100 hp. Firebox Boiler, 100 lb. pressure.
2—100 lb. Internally fired Marine Type Boiler. 100 lb. pressure.
1—50 hp. Vertical Boiler, 100 lb. pressure.
1—30 hp. Vertical Tubular Boiler.
10—250 hp. Water Tube Boilers, 200 lb. pressure. Complete with steel casings.
1—60-hp. Locomotive Firebox Boiler, 160 lb. pressure.

TANKS

1—Open Top Storage Tank, approximately 4 ft. wide, 7 ft. deep, 10 ft. long, ¼-in. material.
10—Open Top Storage Tanks, 40 in. wide, 66 in. deep, 77 in. long; 3/16 in. material.
1—Open Top Storage Tank, 10 ft. wide, 6 ft. 9 in. deep, 16 ft. long; about ⅝ in. material.
1—Open Top Storage Tank, 6 ft 9 in. wide, 10 ft. deep, 16 ft. long; about ½ in. plate.
2—Open Top Storage Tanks, 6 ft. 9 in. wide, 5 ft. deep, 16 ft. long; about ¾ in. material.
2—Open Top Storage Tanks, 10 ft. wide, 3 ft. deep, 16 ft. 3 in. long; about ⅝ in. material.

CENTRIFUGAL PUMPS

1—6-in. Swaby Horizontal Centrifugal Pump.
1—8-in. Fairbanks-Morse Horizontal Centrifugal Pump.
1—10-in. Fulton Horizontal Centrifugal Pump.
1—12-in. Worthington Horizontal Centrifugal Pump.
1—24-in. Kingsford Horizontal Centrifugal Pump.
2—4-in. Young Horizontal Centrifugal Pump.

STEEL BUILDINGS—
For Prompt Delivery

We have available for prompt shipment the following Structural Steel Buildings. All these buildings are designed to mount a 15-ton traveling crane and will pass building ordinances. All modern designs. Steel 95 per cent new. Center to center of crane rails can be adjusted to accommodate any standard crane.

SIZE OF BUILDINGS

Width Ft.		*Length* Ft.		*Height* Ft.
50	x	200	x	32
50	x	300	x	32
50	x	400	x	32
60	x	200	x	34
60	x	300	x	34
60	x	400	x	34
75	x	200	x	34
75	x	300	x	34
75	x	400	x	34

Write for Steel Book No. 30.

Write for Complete Machinery List No. 308.

HARRIS BROS. COMPANY, 1406 W. 35th St., Chicago, Ill.

FOR SALE

STEAM SHOVELS CONCRETE MIXER PUMPS, DRILLS, ETC

1—Marion Model 60 Steam Shovel.
1—Pile Drop Hammer.
1—Haines Concrete Mixer.
2—Scraper Towers, 65 ft.
1—Horizontal engine, 11 in. 15 in., 50 hp.
2—Cameron Pumps.
5—Steam Drills, E-24.
1—Wagon Drill, H-61.
1—McMyler Clamshell.

Write for prices and description of any article wanted

Acme Engineering & Contracting Co.
Herkimer, N. Y.

FOR SALE

MARION SHOVEL

Model 31 on traction wheels. Excellent condition.

BYERS AUTO CRANE

Type "C" on traction wheels with bucket.

Many others—Advise requirements Phone or Wire

C. G. A. SCHMIDT, Jr.
639-41 Land Title Building, Phila., Pa.
Spruce 4745

STEAM SHOVEL

Marion Model 20

Immediate Shipment
Attractive Price

L. A. GREEN
RAIL & MACHINERY COMPANY
1113 First Nat'l Bank Bldg., Pittsburgh, Pa.

LOCOMOTIVES FOR RENT OR SALE

2—50-ton 18 x 24 in. six-wheel switchers.
1—40-ton 17 x 24 in. four-wheel switcher.
1—40-ton Vulcan four-driver saddle-tank.
2—18-ton and 14-ton 36-in. gauge Vulcans.
2—10-ton 7 x 12 in. 36-in. gauge Vulcans.
1—10-ton 36-in. gauge Shay geared.

MISCELLANEOUS

1—Marion 35 steam shovel on traction wheels.
1—Marion 76 steam shovel, No. 3503.
1—Lidgerwood dragline, 60-ft. boom, 2-yd. bucket.
100—60,000-lb. capacity box cars, 40-ft. long.
40—60,000-lb. capacity flat cars, 36-ft. long.
13—6-yd. dump cars, 4-ft. 8½ in. gauge.
12—1 ½-yd. "V" steel dump cars, 36-in. gauge.
1—Western standard gauge spreader, 2-in., 4-in. and 6-in. simple, duplex, and centrifugal pumps, 10-hp. and 45-hp. upright boilers, tripod drills, etc.

Locomotive Cranes, Railway Equipment, etc.

INDUSTRIAL EQUIPMENT CO.
McCormick Building, Chicago, Ill.

NEW MIXERS
in stock for immediate delivery

4-S **10-S**
7-S **14-S**

Smith Mixers

With or Without Power Loaders

GUARANTEED USED EQUIPMENT

1—"Boss" 10 ft. wet capacity, power loader
1—"Boss" 7 ft. wet capacity, power loader
1—"Packard" 7 ft. wet capacity, low barrow
2—"Boss" 4 ft. wet capacity, low barrow
1—"Ideal" 4 hp. Single drum gasoline hoist
1—"Lidgerwood" D.C. D.D. 7 in. x 10 in. steam hoist with boiler
1—"Farquhar" 8½ in. x 11 in. center crank Portable steam engine and boiler

Send me your inquiries.

H. M. HIRSCHFELD
Phone Cortlandt 1305 50 Church St., N. Y.

CLAM SHELL BUCKETS

½ and ¾ cu. yd. [illegible] per day $4.00
1 and 1¼ " " " " 5.00

FOR SALE NEW AND REBUILT MAISS

For All Purposes

and Rehan[illegible]

[illegible] 140th St. and Rider Ave. New Yo[illegible]

STEAM SHOVELS

Osgood 73 Railway, immediately available.
Marion Model 36 Traction Revolving, 1½ yd.
Erie Type B Traction, ⅜ yd. Excellent condition.
Marion Model 21 Caterpillar, slightly used.
Osgood 29, combination shovel and crane.
Thew No. 0 Electric, with combination railway and traction trucks.
2—Marion Model 31, 1-yd. Revolving.
Marion Model 61 Railway, 2½-yd. Like new, ready for immediate service.
Also large revolving stripping shovels.
Wire, write, or call for further details.

W. R. WADDELL
50 Church St., New York City
Telephone: Cortlandt 4873

FOR SALE OR RENT

REVOLVING STEAM SHOVELS

2—Thew "O" ⅝-yd. dippers.
1—Thew "A1" ⅞-yd. dipper.

Rebuilt ready for delivery. Located Jersey City.

JAS. S. BRADEN
26 Cortlandt St., New York City

PAVING MIXER FOR SALE

Koehring, 2 bag batch capacity, steam driven, 20 ft. boom and bucket, power traction ahead and reverse. Completely rebuilt. Immediate shipment. **Price $2100 complete loaded.**

H. Y. SMITH CO.
Milwaukee, Wis.

SHOVELS

One (1) No. 0 Thew Traction Shovel.
Two (2) Type B. Erie Traction Shovels.
One (1) Model 28 Marion Caterpillar Shovels.
One (1) Model 31 Marion Caterpillar Shovel.
One (1) Model 31 Marion Traction Shovel.

Everything for the Contractor.

Send us your inquiries. We are reasonably sure to be able to serve you.

W. E. KENNEDY CO.
Union Bank Bldg., Pittsburgh, Pa.

FOR SALE

4—HOLT TRACTORS

3—45's 1919 Model.
1—45 1917 Model.

ALBERT LEA FARMS CO.
Albert Lea, Minn.

LOCOMOTIVES

Both Narrow and Standard Gauge, completely rebuilt

STEAM SHOVELS

1—Model 80-C Bucyrus, 4-yd. dipper.
3—Model 60 Marion.
3—Atlantic type, 2½ yd. dipper.
1—Bucyrus 45, 2-yd. dipper.
1—Model 70-C Bucyrus.
1—Marion, Model 20.

Also

DUMP CARS

of various types and capacities.

All in stock in Atlanta, Ga.

SOUTHERN IRON & EQUIPMENT COMPANY
Established 1889, Incorporated 1906
Branch Offices, New Orleans, La.
Main Offices and Plant, Atlanta, Ga.

CARS FOR SALE

36—4 yd. steel draft sill Western 36 in. gauge
12—6 yd. Western and K. & J. standard gauge.
12—1 yd. V Body Lakewood 24 in. gauge.
20—50 ton all steel hopper coal cars, standard gauge.
40—30 ton wood body steel draft sill hopper bottom.

LOCOMOTIVES

1—Mogul 30 ton 36 in. gauge 180 lb.
1—Mogul 45 ton, 36 in. gauge, 185 lb.
1—Consolidated standard gauge 82 ton 200 lb.
2—Vulcan 36 in. gauge, four wheel, saddle tank 11 x 16 in.
2—Porter saddle tank standard gauge, 12 x 18 in.
1—Porter saddle tank 36 in. gauge, 10 x 16 in.
1—Vulcan saddle tank 36 in. gauge, 6 x 10 in.

STEAM SHOVELS

2—type B Erie ¾ yd. traction.
1—Osgood 1⅜ yd. traction.
2—70C Bucyrus standard gauge 2½ yd.
1—61 Marion standard gauge 2½ yd.

Boiler, Engines, Compressors

THOMAS F. CAREY CO.
120 Liberty St., New York

CARS

75—Standard gauge, 50,000 lb. capacity flat.
10—Cattle cars, metre gauge.
10—Box cars, metre gauge.
1—Standard gauge box car.
1—Standard gauge passenger coach.
4—Metre gauge passenger coaches.

HOISTING MACHINERY CO.
50 Church Street, New York

BOX CARS
Steel Underframe

Immediate Shipment

All in A.R.A. Interchange Condition.
Capacity 60,000 lbs.
Length 40 feet.

GONDOLA CARS

Capacity 80,000 lbs.
Length 40 feet.

REBUILT FLAT CARS
STEEL UNDERFRAME

Capacity 60,000 lbs.

44-ft. cars suitable for Bunk Cars.

FOR RENT

60,000 capacity, 36-ft. Box Cars.

Asphalt Plants Locomotives
Locomotive Cranes
Road Rollers

P. E. FRANCIS & CO.
Railroad and Industrial Equipment
Marquette Bldg., Chicago, Illinois

LOCOMOTIVES

6 x 10 Vulcan Locomotive, 42 in. gauge.
9 x 14 Davenport Locomotive, 42 in. gauge.
10 x 14 Vulcan Locomotive, 36 in. gauge.
10 x 16 Vulcan Locomotive, 36 in. gauge.
7 x 12 Davenport Locomotive, 36 in. gauge.

ENGINES

13 x 15 Skinner 150 hp. Automatic.
11 x 16 Rice 65 hp. Automatic.

TANKS

27 ft. diameter by 23 ft. high, 100,000 gallon water tank, ¼ in. steel. In first-class condition.

HOISTING ENGINES

7 x 10 D.C. S.D. Lidgerwood Engine.
9 x 12 D.C. S.D. Coal Hoisting Engine.
12 x 24 D.C. S.D. First Motion Coal Hoist.

All rebuilt in our shops.

The Pittsburg Boiler & Machine Co.
Pittsburg, Kans.

WESTERN AIR DUMP CARS

FOR SALE OR FOR RENT

12-yard and 16-yard capacity.

Suitable for the heaviest construction or maintenance service.

All cars absolutely guaranteed in condition and U. S. Safety appliance standard.

Our cars now leased by twelve railroad systems.

CLAPP, NORSTROM & RILEY EQUIPMENT CO.
14 So. Canal St., Chicago, Ill.

Cars and Switches

8—36 in. gauge, 1½ yd. spring truck journals, two way V dump cars. New. Price, $200 each.
12—24 in. gauge, 1 yd. rotary dump cars. Price, $75 each.
12—24 in. gauge, 1 yd. two way V dump cars. Price, $75 each.
4—36 in. gauge. Switches.
20—30 in. gauge. Switches. One and two way.

All Manufactured by Lakewood Eng. Co.

THE DAY & MADDOCK CO.
Winslow Ave. N.W. and B. & O. R. R.
Bell Phone Main 422 Cleveland, O.

10 x 16 in. Dinkey

ONE 36-INCH GAUGE

10 x 16-in. four-wheel Porter saddle tank locomotive. Shop No. 2164. Overhauled. Reasonable price. Located Chester, Pa.

E. H. WILSON & COMPANY
COMMERCIAL TRUST BUILDING
PHILADELPHIA

40-Ton Saddle Tank Locomotive

15 x 24, standard gauge, BALDWIN, 150 lb. steam pressure, 3 in. tires, excellent condition, immediate shipment.

Grey Steel Products Co.
111 Broadway, New York

FOR SALE

150 Cars, 10 Dinkeys.
4—Draglines, 7 Loco Cranes
3—Trenchers, 7 Crushers.
800 Tons Rail, 3 Dredges, and 7 Steam Shovels.

J. F. DONAHOO CO.
Birmingham, Ala.

LOCOMOTIVE

75 ton American 4-6-0
Immediate Shipment, Attractive Price.

L. A. Green Rail & Machinery Company
1113 First National Bank Bldg., Pittsburgh

RAILS RAILS RAILS

THE MORRISON & RISMAN COMPANY
NEW RAILS RELAY
FROGS AND SWITCHES
TRACK ACCESSORIES
GENERAL OFFICES BUFFALO, N.Y.
HOUSE BUILDING PITTSBURGH, PA.
THE MORRISON & RISMAN CO.
ASK THE ONE WHO OWNS THEM

RELAYING RAILS

2000 tons 56 lb. rail and angle bars
2000 tons 60 lb. rail and angle bars
500 tons 61½ lb. rail and angle bars

We can make immediate shipment of this rail and quote you an exceptionally low price. Please wire for particulars.

The Isaac Joseph Iron Co.
528 Reading Rd., Cincinnati, Ohio

HARRY BENJAMIN EQUIPMENT CO.
725 Central National Bank Bldg.
St. Louis, Mo.

We offer for prompt shipment from stock
50 tons 12-lb. new rail mine lengths.
50 tons 20-lb. new rail mine lengths.
50 tons 35-lb. relaying rail.
200 tons 56-lb. relaying rail.
300 tons 60-lb. ASCE section relaying rail.
100 tons 85-lb. relaying rail.
New spikes and bolts—stock shipments.

SHIPMENTS OF MIXED INDUSTRIAL SCRAP AND RAIL WANTED
WE PURCHASE
Abandoned Plants and Railroads.

Relaying Rails

Immediate Shipment

4000 TON 60 LB.

300 Ton 70 lb. 10 Ton 56 lb.
13 Ton 60 lb. 200 Ton 54 lb.
800 Ton 48 lb.

M. C. Fairchild & Co., Inc.
347 Madison Ave., N. Y.

IMMEDIATE SHIPMENT

1000 Tons—80-lb.
Relay Rails and Bars
(ASCE Section)
300 Tons—105-lb.
New Rails and Bars
(Dudley Section)

Duluth Iron & Metal Co.
Duluth, Minnesota

RAILS

200 tons 25 lb. Relayers.
200 tons 30 lb. Relayers.
100 tons 35 lb. Relayers.
50 tons 40 lb. Relayers.
50 tons 56 lb. Relayers.
200 tons 60 lb. Relayers.

Write, Wire, or Telephone

H. T. LAMBERT COMPANY
Huntington, W. Va.

I-BEAMS

34—24-in. I Beams 7-in. face—26-ft. to 34-ft. long, as good as new, located Huntington, N. Y.

RAILS

1000 Gross Tons 70 lb. First class relaying rail with angle bars.
2000 Gross Tons 90 lb. First class relaying rail, located in Ohio.
Wire or write for prices.

M. K. FRANK
Frick Building, Pittsburgh, Pennsylvania

RAILS

NEW—12 lb., 16 lb., 20 lb., 25 lb., 30 lb., 40 lb.
NEW—60 lb., 70 lb., 75 lb., 80 lb., 85 lb., 90 lb.
RELAYERS—30 lb., 35 lb., 40 lb., 45 lb., 56 lb., 60 lb.
RELAYERS—70 lb., 80 lb., 85 lb., 90 lb., 100 lb.
FASTENINGS—New Bolts, Nuts and Spikes.
New Frogs, Switches, Crossing, and All Accessories
Carload and less Carload. Rails cut to lengths for structural purposes.
Attractive Prices.
Immediate Shipments from Stock.

L. B. FOSTER COMPANY
Park Bldg., Pittsburgh, Pa.
Tribune Bldg., 154 Nassau St., New York, N. Y.

FOR SALE

500 tons 100 lb.

RELAYERS

Complete with all accessories. Penna. R.R. Standard.

Equipment Corporation of America
628 Land Title Bldg., Philadelphia, Pa.

New Rails—Relayers

Cars, Locomotives, Steel Products

Send us your inquiries.

MERCHANTS STEEL & SUPPLY CO.
208 S. La Salle St., Chicago, Ill.

STEEL RAILS

AND FASTENINGS

Locomotives, Steam Shovels, Locomotive Cranes, Cars, Railway and Contractors' Equipment

FOR RENT

No. 0 Austin Trencher with crew. Derrick Boat 75 ft. boom, 25 ton lift, triple drum hoister.

E. C. SHERWOOD
50 Church St., New York

STANDARD RAIL & STEEL CO.
1110 Boatman's Bank Bldg., ST. LOUIS, MO.

RE-LAYING RAILS All Weights and Sections

Spikes, Bolts and Accessories

Buy and Sell SCRAP IRON AND STEEL

YOUR RAIL if advertised here, will reach a field of over 30,000 readers including many big **BUYERS**

The List of Purchasers from War Department Sales Reads Like a Blue Book of America's Biggest Business Interests

Nearly one hundred thousand individual orders representing sales amounting to nine hundred million dollars is the staggering total of property disposed of through War Department sales to date.

The buying power of America has responded to these sales in a big way, many of America's biggest business interests looking to them as a regular source of supply.

Thousands of machines purchased through this channel are in operation. Thousands of motors, generators, and other electrical equipment are supplying heat, light and power in every industry. Huge quantities of chemicals have found their way to use through these sales. Thousands of tons of iron and steel from this source have been wrought into every conceivable tool and commodity. Millions of dollars' worth of high-grade wanted materials, supplies, etc., and equipment of every description has reached the consumer's market through regular re-sale channels.

As long as War Department stocks last, opportunities are many.

As a unit of the buying power of American it is to your advantage to follow every War Department offering. Others have benefitted. Why not you?

Read Every Item on the Following Pages

WAR DEPARTMENT
"Surplus Property Sales"

Every Item of

Route This Advertisement Through Your

EASTERN DIVISION

13640

4—Push Carts, No. 12 U. S. Gauge Steel, 109 in. thick, 39 in. long at top, 21¼ ⅛ wide at bottom, 20 in. deep; Capacity 6 ft.
Location—Norfolk, Va.

1084

1275 lb. Dynamite, 40% low freezing.
Location—Norfolk, Va.

19492

450 lb. Dynamite, Dupont Red Cross 40-90 strength, 50 bxs.
Location—New York.

13625

92—Hammers, Riveting, steam operating No. 5 "Little David," chipping and parts.
Location—Norfolk, Va.

14200

9—Hammers, Riveting No. 90 with ⅞-in. button head rivet sets, mfd. by Ingersoll Rand Co.
Location—New York

13631

1—Wright, High Speed Hoist, 4 ton capacity, with 12-ft. lift.
Location—Norfalk, Va.

E-642

29,875 ft. Discharge Hose, 2-in. dia., 4 ply, 25-ft. lengths, coupling and clamps attached.
Location—Pittsburgh, Pa.

E-645

20,400 ft. Discharge Hose, 2-in. dia., 4 ply, 25 ft. lengths, coupling and clamps attached.
Location—Pittsburgh, Pa.

---

100 ft. Air Hose, ¾-in. wire bound.
Location—Pittsburgh, Pa.

E-643

12,500 ft. Discharge Hose, 2-in. dia., 4 ply, 25-ft. lengths. Coupling and clamps attached.
Location—Pittsburgh, Pa.

E-644

37,375 ft. Discharge Hose, 2-in. diam., 4 ply, 25-ft. lengths, coupling and clamps attached.
Location—Pittsburgh, Pa.

E-640

3840 ft. Suction Hose, 2-in. dia., 4 ply, 15-ft. lgths, coupling and clamps attached.
Location—Pittsburgh, Pa.

E-891

2—Steel Structural Shapes, 54-in. 2-ft. x 7-ft. x 4-ft.
Location—Philadelphia, Pa.

E-889

27—Structural Steel "I" Beams, 2½ in. x 4 in. 12 ft.
Location—Philadelphia, Pa.

List Continued

WAR DEP

"Surplus Prop

Pertinent Interest

Organization So All May Benefit

E-614

3,510 ft. Suction Hose, 2-in. dia., 4 ply, 15-ft. lgths, coupling and clamp attached.

Location—Pittsburgh, Pa.

3510

10,686 "I" Beams, 12-ft. lengths, 4-in. width; 7¼ lb. per ft.

Location—New Cumberland, Pa.

E-879

2,360 Structural Steel "I" Beams, 5½-in. x 3-in. 9-ft. long, 5½-in. high, 3-in. wide.

Location—Pittsburgh, Pa.

E-892

1—Steel Structural Shape, 48-in. x 7-ft. x 4-ft.

Location—Philadelphia, Pa.

13667

41—Shelters, corrugated iron metal arch, 32-ft. x 9-ft. x 7-in. x 11 gauge. Elephant type "E." Complete with parts.

Location—Schenectady, N. Y.

E-890

191 Structural Steel "I" Beams, 15-ft. 6-in. long, x 3½-in.

Location—Philadelphia, Pa.

CENTRAL DIVISION

11102

28—Books, level 4½ x 7½.

Location—A. R. D., Columbus, O.

11116

107—Books, handbook of plant construction.

Location—A. R. D., Columbus, O.

3406

5—Logging Carts No. 2, new; wheels 9-in. high; tires 4-in. x ½-in., 8-in. hickory axle tongue, chains and trap hook, singletrees, evener and neckyoke.

Location—Pullman, Ill.

C-67

1—Pile Driver, portable compound gas engine and hoist, Class "A."

Location—A. R. D., Columbus, O.

On Next Page

MACHINERY AND ENGINEERING MATERIALS

LIST NO. 13

Sale by Negotiation

HOW TO ORDER

All orders and negotiations for materials offered in this list must be addressed to the Depot Quartermaster of the division where material is located. These divisions and the addresses of controlling offices are given below. To obtain a complete list of materials not listed in this advertisement, clip and mail the attached coupon.

LIST OF DIVISIONS AND CONTOLLING OFFICES

EASTERN DIVISION
59th St. and 1st Ave.
Brooklyn, N. Y.

CENTRAL DIVISION
1819 West 39th St.
Chicago, Ill.

SOUTHERN DIVISION
Transportation Bldg.
Atlanta, Ga.

SOUTHWESTERN DIVISION
San Antonio, Texas

NORTHEASTERN DIVISION
Army Supply Base
Boston, Mass.

COUPON

Chief, Sales Promotion Section, Office of the Director of Sales, Room 2515, Munitions Building, Washington, D. C.

Important
Mail Coupon to This Address

Kindly send M. & E. M. List No. 13 in its entirety .....

Firm Name .....

Street Address .....

City ..... State .....

Signed by .....

Engineering News-Record

ARTMENT
erty Sales"

MACHINERY AND ENGINEERING MATERIALS
LIST No. 12 (Cont'd)

15692

27—Drawing Boards with trestle; 23-in. x 31-in.
Location—Columbus, Ohio

11985

5—Winches, hand, single drum 6-in. x 20-in. bbl. raybestors lined brake with safety strap; double purchase.
Location—A. R. D., Columbus, O.

SOUTHERN DIVISION

S. E. 250

1—Hoisting Engine, upright, Class "B" 30-in. x 5-ft. 6-in.
Location—Oteen, N. C.

S. E. 249

2—Concrete Mixers, Ransome, Class "B."
Location—Oteen, N. C.

S. E. 110

2504 Unions Special. Bet N, Class "R."
Location—Atlanta, Ga.

S. E. 101

203 lb. G. I Wire, No. 5, Class "A."
Location—Atlanta, Ga.

S. E. 100

189 lb. G. I Wire, No. 7, Class "A."
Location—Atlanta, Ga.

Additional Items from
MACHINERY AND ENGINEERING MATERIALS LIST No. 13
To Be Sold By Negotiation

Aneriod Barometers
Cannister Bottoms
Compass Boxes
Ratchet Braces
Brass Grommets
Brass Fasteners
Brass Hock Parts
Brass Loops
Brass Rivets
Brass Slides
Brass Studs
Brass Washers
Lead Covered Cable
Telephone Cable
Cable Releases
Calipers
Canvas, O. D.
Compass Watches
Condensers
Reducer Connections
Conveyors
Cylinders
Duck, O. D.
Steam Engines
Gas Mask Eye Lenses
T.N.T., Cylindrical
Trench Fans
Flashlights
Fuses
Fuse Dust
Generator Sets
Expansion Joints
Electric Knives
Metal Forming Machines
Machine Check Writers
Motors
Cannister Nozzles
Oil for Break Switches
Loom Oil
Lard Oil
Quenching & Tempering Oil
Pipe Fittings
Nipples
Malleable Pipe
Sewer Pipe
Signal Plugs
Galvanized Bit Plugs
Steel Springs
Switch Boards
Rubber Tape
Cannister Tops
Tripods for Heliographs
Wrist Watches
Barbed Wire
Plain Copper Wire
Weaving Wire
Differential Cap Pulleys
Resonators
Heavy Wire Screens
English Screws
Shanks for Indicator Posts
Steel
Bar Steel
Structural Steel
Wrought Iron
Angle Posts
Screw Posts
Galvanized Rods
Crucible Tool Steel
Steel Hoops
Strip Steel
Tool Steel
Air Tanks
Galvanized Iron Tanks
Vertical Tubular Boilers
Beaded Edge Casings
Zincographic Chests
Chief Operator's Desks
Motor Fuses
Meat Grinders
Knife Grinding Machines
Gum Box Board
Hob Nails
Engine Lathes
Motors for Grinders
B. T. Boilers
Cavalry Plastrons
Boiling Plates
Screw Plates
Stocks & Dies
Coupling Poles
Payout Reels
Relay Racks
Hand Rip Saws
Spare Parts for Steam Engines
Buffalo Shears
Flagstaffs
Tanks, Wood
Film Tanks
Storage Tanks
Boilers and Covers
Cold Rolled Steel
Oil Reclamation Plants
Wire Firing Reels
Anti-Dimming Outfits
Very Pistol Shells
Bicarbonate of Sodium
Sulphur
Rubber Outlet Valves
Expanded Metal Sheets
Cement Glue
Litharge
Respirators, Horse
Warning Signals, Gas
Trench Sprayers
Rubber Tubing
Wire Outlet Valves
Horseshoe Nails

SURPLUS PROPERTY BRANCH
Office of Quartermaster General
Munitions Building, Washington, D. C.

WAR DEPARTMENT
"Surplus Property Sales"

OIL STORAGE TANKS

Twenty-five Oil Storage Tanks ready for immediate delivery

Size 10-ft. 6-in. x 29-ft. 5-in. long, ¼-in. material throughout; 18-in. dia. manhole, capacity 19,200 gallons. Built to Standard Oil specifications. Prices quoted on application.

We are located on the Pennsylvania system, with direct connection to Western Maryland., Norfolk & Western and B. & O. R. R.

New York Central Iron Works Company, Inc.
Main Office: **Hagerstown, Maryland**

SALES OFFICES:
30 Church St., New York — 1023 Widener Bldg., Philadelphia — Builders Exchange, Baltimore

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FOR SALE

Trench Machine

PARSONS

Size 78, overhauled. $2,200
F.O.B. car. With parts.

FS669 Eng. News-Record
1570 Old Colony Bldg., Chicago, Ill.

Contractors' Plant

FOR SALE

Floating and Land Pile Drivers.
Hoisting Engines, 7 in. x 10 in.
Rock Crusher, 11 in. x 22 in.
Diving Outfits.
Orange Peel Buckets, ¾ yd.
Concrete Mixer, ¾ yd.
Derricks, Stiff Leg and Guy.
Miscellaneous.

Send for Revised Price List

JARRETT-CHAMBERS CO.
30 East 42nd St., New York City

STEEL SHEET PILING

Lackawanna 14-in. Arch Web.
82 pieces 30 ft.
200 pieces 45 ft.
60 pieces 42 ft.
18 pieces 38 ft.
18 pieces 34 ft.
15 pieces 19 ft. to 21 ft.
50 pieces 12 ft. to 19 ft.

Delivery from New York City

BROWN & SITES CO.
30 Church St., New York
Telephone Cortlandt 1190

FOR SALE
TRENCHING MACHINE
Parsons—Large Size
TRENCHING MACHINE
Potter
For Immediate Delivery
JOHN B. McLANE & COMPANY
Newport, Kentucky

For Sale at Bargain Price

STEEL DERRICK

90 foot boom; 20 foot extension if desired. Thomas Elevator Hoist Chain Drive by 55 hp. motor, 62 inch Cutler-Hammer Magnet.

Derrick can be inspected operating at our yard.

Kammer, Friedman & Co.
3018 E. 55th St., Cleveland, Ohio

HEAVY DUTY PUMP

For immediate delivery, we can offer one Terry Turbo Centrifugal Pump type "two stage" 6 in. suction and 5 in. outlet—capacity 660 gals. per minute against 415 ft. head—practically new.

The Stamsocott Co.
Hopewell, Virginia

FOR SALE
Special Offer
Angles, Channels and I-Beams
at 3½c. lb., from stock. Rods, 4c. lb
MARYLAND PIPE SUPPLY COMPANY
Hagerstown, Md.

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450 Tons I-Beams, Channel Iron and T-Bars
Second-hand, excellent condition at a very low figure.
BRENNER & MICHAELSON
Richmond, Va.

FOR SALE
Buckets, Boat, Drill Steels, Air Engines, Horizontal Engine, Fans — Sirocco, Oil Separator, Pipe, Pumps, Stack.
HAROLD CARPENTER
Resident Engineer, Astoria Light, Heat & Power Co.
130 East 15th St., New York City.

AIR COMPRESSOR—BARGAINS
1—385 cu. ft. per min. (12 x 14¼ x 14) Ingersoll-Sergeant, straight line, steam driven. Class A.
1—396 cu. ft. (12 x 14 x 9 x 14) Sullivan, straight line, steam driven.
1—498 cu. ft. (14 x 16¼ x 18) Ingersoll-Sergeant, straight line, steam driven. Class A.
1—596 cu. ft. Ingersoll-Rand, straight line, steam driven. Class A.
1—1596 cu. ft. Ingersoll-Rand, straight line, steam driven.

STEAM HOISTS & PUMPS
8—7 x 8 and 8 x 8 Single cylinder, geared with cone friction, drum 20 in. dia. by 14-in. face, in fine condition, a bargain.
1—10 x 6 x 12-in. Gardner, Special Duplex, slush pump (pot valves), capacity 290 gals. per min., nearly new.
2—16 x 6 x 10 Worthington, regular duplex pump.
2—7½ x 5 x 6 Scranton, regular duplex pump.
3—6 x 4 x 6 Gardner and Scranton regular duplex pumps.

JOPLIN MACHINERY & RENTING CO.
301 Virginia Ave., Joplin, Mo.

THE CURTISS-WILLIS CO., Inc.
No. 30 Church St., New York
LARGEST EXCLUSIVE DEALERS IN
USED AND NEW TANKS
We Make Lower Prices

We specialize in
STEEL PILING
Buying and Selling
Wire or write your requirements.
ZELNICKER IN ST. LOUIS

STEEL PILING

600 pcs. 7 in., 14 ft. long.
900 pcs. 12¾ in., 20 ft. long.
500 pcs. 14 in., 25 ft. long.
Immediate delivery.

MERCHANTS STEEL & SUPPLY CO.
208 S. La Salle St., Chicago, Ill.

FOR SALE
SHEET STEEL PILING
Lackawanna 14-in. Arch Web: 134 pieces 30 ft.; 43 pieces 20 ft.; 27 Corner Pieces, at Detroit; 375 pieces 10 ft. straight web 7-in. x ¼-in. at Buffalo; 466 pieces 12¾-in. x ⅜-in.—20 ft., Chicago District.
UNIVERSAL EQUIPMENT COMPANY
Niagara Falls, N. Y.

The Slaughter of the Innocents

WHEN JESUS CHRIST came upon the earth, nearly two thousand years ago, to save all mankind, his mere coming seemed to interfere with the material interests of a few people of that period, notably King Herod, who promptly decided to dispose of this "interloper," and sent forth his soldiers with orders to slay all the children of two years old and under. Thus was consummated the most atrocious crime against innocent childhood ever committed up to that time. It has come down to us through all the ages in song and story, and master painters have pictured it on marvelous canvases.

To-day passing in review, as we look out through the windows of our comfortable homes in this great and happy land, are three and a half millions of helpless children, the innocent victims of the greatest war that has ever afflicted humanity. It matters not, as we gaze in the direction of these children, that our eyes must stretch across three thousand miles of ocean, we still can see them and we still can hear them, if we wish to do so; and we can not help hearing the tragic appeal in their voices and seeing their tiny arms stretched out to us, and their searching eyes looking into our souls, as they say, "Help us, or we perish." And if we fail to listen to this great call of three and a half millions of God's helpless children; if we close our eyes and ears to this great demand of duty, we will be just as guilty of the "slaughter of the innocents" as was Herod, nearly two thousand years ago.

In these lands, swept by death and filled with tragedies too deep for tears, a sum of human suffering is being written greater perhaps than for all ages gone by. The mind grows numb and the heart sick from a constant recital of tales of such tragedy as it is difficult to believe the twentieth century could hold.

And so, when the call for help came from Mr. Hoover telling that America must not allow hunger and cold to return to this mass of 3,500,000 helpless children the soul of America was stirred and the hot blood surged up in our hearts. It is our imperative duty to use all the power God has given us to aid this noble-hearted American in continuing the work of saving human lives to which he has devoted unsparingly, and at great personal sacrifice, his tremendous energy and administrative genius during the past six years, in which time he and his American colleagues have administered two billions of dollars of relief funds from all parts of the world with a total overhead expense of only three-eighths of one percent., without any remuneration to the American directors. Now he asks us all to help save the children who are in imminent danger of starvation this coming winter.

There they are, in the midst of wrecked homes, and farms, and factories; in cities crowded with masses of refugees without sustaining food for children, through the destruction of live stock; seeds for planting, raw materials, tools, and machinery gone; great areas with everything burned, or looted, or smashed; vast unemployment for workers; no means of subsistence; a land of economic ruin, of mutilated life, and lingering death; and in the midst of it all —the little children.

In long lines they are waiting at the American food-kitchens. Will the food be there for them? Will they be turned away? There are no happy, healthy faces in those long lines—not one. You have seen rags and barefooted children, but never so many little boys and girls literally drest in tatters. They are facing a winter of devastating cold, and for those bare little feet and legs and arms there is nothing at home to put on.

Hollow faces and shrunken bodies are so common that their real conditions does not become evident until we inquire more closely, and then we find that most of them are from one to five years back in their growth. Children of eight years old have not reached the normal size of two and a half. They are just learning to stand alone. Others almost as old can not yet stand on their feet. Their arms, and legs, and spines, and chests are twisted and warped. The flesh and skin are shriveled on their bones. It is surprising that life can still exist there. If they can have food they will gradually regain their health and strength, but with most of them it is a question of now or never. Starvation and tuberculosis will not wait.

In Poland alone a million five hundred thousand such children must be cared for. In Latvia and Esthonia the people are living mostly on a diet made from potato-flour, oat-flour, and sawdust. In Czecho-Slovakia, in Hungary, in Austria, and in other countries of central and southeastern Europe, two millions more are in dire need of food; and who stops to ask regarding creed, or race, or nationality when a little child is starving? Children are just children the world over, and the great American heart is big enough to care for them all.

But the appeal now is not for all. The three and a half millions of children in immediate danger of starvation, if this organization fails, who *must* have food at once, are only a fraction of the total number. The hungry children of those destitute countries have been examined by competent physicians, and only those whose wasted little bodies are reduced to the minimum weight, and whose endurance of hunger has reached the end which merges into actual starvation, are admitted to the American kitchens and given *one meal a day*. It is hard to turn away thousands of hungry boys and girls—to hear them ask, pleadingly, "Do I weigh too much?" "Am I not thin enough?" "Can't I come any more?" But this restricting of food to the extreme cases is compulsory, because there isn't enough for all.

And these neediest ones can not reach the kitchens through the cold winds and the snow barefooted and in the pitiful rags which form only a partial covering for their bodies. They must have clothes. Each outfit consists of one pair of warm woolen stockings, one pair of boots, and a little overcoat. This one meal a day, and these boots, stockings, and little coat can be supplied *only if we give them*. If we do not, the slaughter of the innocents by cold and starvation will be appalling.

Among those who will read this page there is not one—there can not be a single one—whose heart will not respond gladly and eagerly to the challenge of this great need. We are asking *you* to cooperate with Mr. Hoover in raising twenty-three million dollars to feed and clothe these children and save them from death this winter. It can be done. It shall be done! This publication knows its readers and the deep earnestness, the quick sympathy, the great-hearted generosity they always show when any real human need calls to them. You have never been called upon in vain. We are counting on you now with a great confidence. We know, also, how truly you represent the American spirit, which beats in the hearts of over a hundred million people in this big land of plenty, a spirit which leaps ready at every such call, and is never weary in well-doing. We are not a hermit nation, isolated from the world, when suffering and want cry out to us from anywhere under the sun. A great, a beautiful, and heart-sustaining hope supports these stricken people—*America will come to their relief*. For in the far places of the earth, where famine stalks, one name and one alone is synonymous with rescue and hope—and that name is America.

The small individual unit of ten dollars will provide the coat and boots and stockings and one meal a day for one child this winter. We urge our readers—we urge *every one* whose eyes are on these words—to give quickly as many of these units as possible, **to buy for themselves that precious and priceless thing, the live of a little child**—as many of them as they can, and everyone will be a shining star in an eternal crown. It was the Divine Lover of little children, who came to earth as a little child, and who reigns now as the King of Glory, who said, "Inasmuch as ye have done it unto one of the least of these, ye have done it unto me." He does not forget, nor fail to reward.

Mr. Hoover, Chairman of the European Relief Council which has been organized to spread this great need before the American people, is asking twenty-three millions to save the lives of these little innocent children who are facing death. This European Relief Council includes among its workers the following organizations—American Friends' Service Committee (Quakers), American Relief Administration, Jewish Joint Distribution Committee, American Red Cross, Knights of Columbus, Federal Council of Churches of Christ in America, Y. M. C. A. and the Y. W. C. A. These organizations, led by Mr. Hoover, are banded together in this great cause for humanity to redeem the little lives and save the terrible toll of tiny graves by the hundred thousand.

Let us all see again what the Father's heart is like in this great rich land of America. Let us spring to the rescue, as true Americans always have done, and contribute to the extent of our hearts—for never was a need more urgent or help wanted more quickly.

Make your check payable to Franklin K. Lane, Treasurer, and mail it to the European Relief Council, 42 Broadway, New York City. Every dollar will go toward the purpose for which you give it without one penny deducted. Give, and give *now*.

While Business Lags Recover Your Sanity

You have been "off your base" in the hurly-burly of the last few years.

"Sound asleep" as it were.

Hurting yourself in your sleep more than you yet realize.

You were "crazy" enough to think we were crazy in our manner of getting the Ridgway Elevator to market. But there was method in our madness.

We offered this Wonderful Elevator to you Engineers and you laughed us out of your office.

"Young man if that was a good thing it would have been in use years ago," is what you said.

Then we went to the Mill Owners and got in our elevators in spite of you by almost giving them away.

And today over 3000 of the Greatest Concerns in the land are shouting the praises of the Ridgway Elevators——Concerns like this sample 21 for luck.

United Gas Improvement Co.	Procter & Gamble Co.	Crane & Co. (Dalton)
Yale & Towne Mfg. Co.	H. J. Heinz Co. "57"	United States Government
Cluett, Peabody & Co.	International Harvester Co.	E. I. Du Pont & Co.
Consolidated Gas Co.	John Wanamaker	General Electric Co.
National Cash Register Co.	Remington Typewriter Co.	Packard Motor Car Co.
Hammermill Paper Co.	Continental Gin Co.	Continental Can Co.
	Erie Railroad Co.	American Tobacco Co.
		John Morrell & Co.

Yes I know there are far more than 21. That is what the trade will say too.

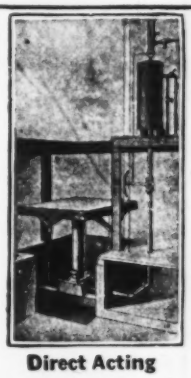
Penna. R. R.	Gen'l Refractories Co.	Merrimac Chem. Co.
N. Y. Central R. R.	Michelin Tire Co.	Lukens Steel Co.
New York World	Am. Hard Rubber Co.	Congoleum Co.
Diamond Match Co.	U. S. Rubber Co.	Chicago Mill & Lumber Co.
Am. Smelting & Refining Co.	B. F. Goodrich Co.	Swift & Co.
Strd. Underground Cable Co.	Midvale Steel Co.	Remington Arms & Am. Co.
	American Pulley Co.	Spanish River Paper Co.
	Lowell Bleachery	

And so we say you are "crazy" in the face of a showing like this to hit your business a slam in the face by giving a client with steam Electric Elevators when he can

"HOOK 'ER TO THE BILER"

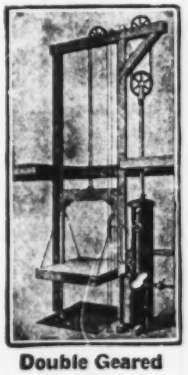
CRAIGE RIDGWAY & SON CO., Coatesville, Pa.

ELEVATOR MAKERS TO FOLKS WHO KNOW

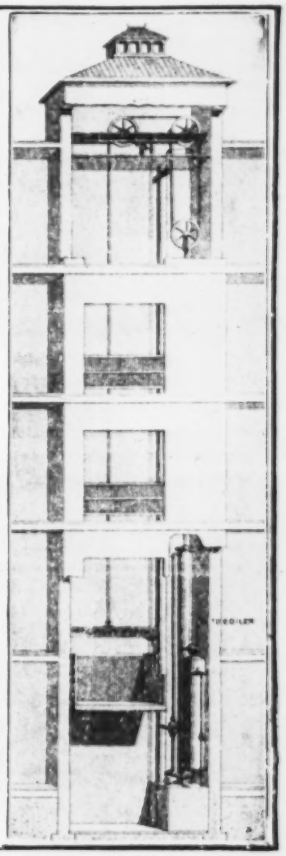


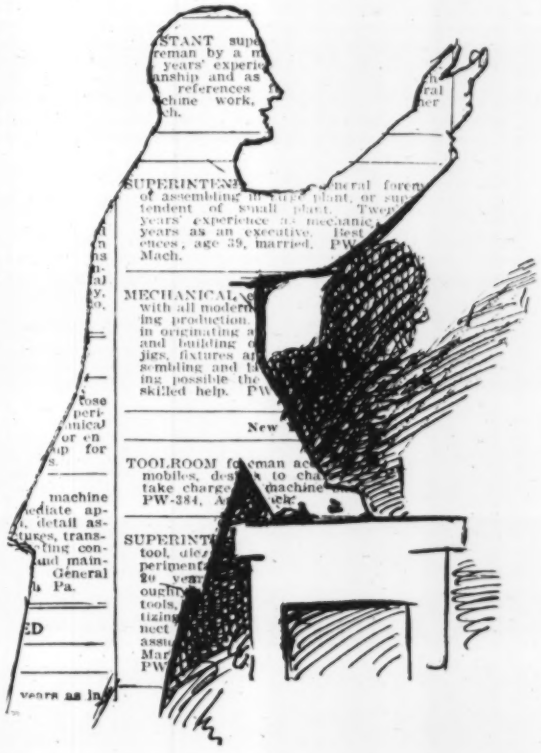
Direct Acting

Over 2,000 In Daily Use



Double Geared





"SEARCHLIGHT" Want ads Talk—

They go direct to those in the industry you wish to reach and tell your story in a forceful and business-like way.

They don't mince words but get right to the point.

Use them for—

Agencies Wanted	Industrial Sites
Agents Wanted	Labor Bureaus
Auction Notices	Machine Shops
Bids Wanted	New Industries Wanted
Books and Periodicals	Partners Wanted
Buildings For Sale	Patent Attorneys
Business Opportunities	Patents For Sale
Civil Service Opportunities	Plants For Sale
Contracts to be Let	Positions Vacant
Contracts Wanted	Positions Wanted
Desk Room For Rent	Proposals
Desk Room Wanted	Property For Sale
Educational	Receivers' Sales
Employment Agencies	Representatives Wanted
Foreign Business	Salesmen Wanted
For Exchange	Specialties
For Rent	Sub-Contracts Wanted
Franchises	Water Front Property
Help Wanted	Work Wanted

Miscellaneous for Sale, for Rent or Want Ads

For Every Business Want "Think SEARCHLIGHT First"

0144

WHITCOMB LOCOMOTIVES

IT WILL PAY YOU TO GET OUR PROPOSITION BEFORE YOU BUY

GEO. D. WHITCOMB CO.

MAIN OFFICE AND WORKS

ROCHELLE, ILLINOIS
U. S. A.

GEAR AND FRICTION DRIVEN GASOLINE LOCOMOTIVES—2½ TO 25 TONS ON DRIVE WHEEL

STORAGE BATTERY LOCOMOTIVES—1 TO 8 TONS ON DRIVE WHEELS

HOLT
PEORIA STOCKTON

Snow Removal with CATERPILLAR TRACTORS

"Caterpillar" Tractors were selected for snow removal work by the New York City Engineers because of their endurance, power and traction. This winter, in the congested business districts of lower Manhattan, the traffic will be kept open and fire danger prevented from ice and snow covered streets.

New York City Purchased 50 "Caterpillar" Tractors.

Street Cleaning Departments, Township, County and State Highway Officials, Public Utilities and Industrial Plants can depend on the "Caterpillar" for snow removal. It solves this problem as thoroughly as it does in road building, lumbering, agricultural and industrial service.

Write for Bulletin on "Snow Removal."

The HOLT Manufacturing Company
Inc.
Peoria, Illinois

Spokane, Wash. New York Office, 50 Church St.
Factories at Stockton, Cal. and Peoria, Ills.

There is but one CATERPILLAR — HOLT builds it.

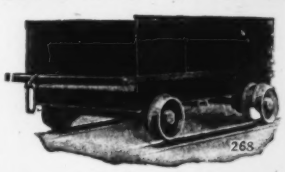
Specialists
in the
DESIGN AND MANUFACTURE
of

Standard—Insulated Compromise Rail Joints

THE RAIL JOINT COMPANY

61 Broadway, New York City

EASTON CARS



Skip cars for any purpose and to meet any conditions—this type but one of a hundred or more kinds of industrial cars for every service.

Tell us what you move.

EASTON CAR & CONST'N CO.

48 Church Street, New York Works: Easton, Pa.
New York Boston Chicago Detroit Pittsburgh Philadelphia

BURTON
GASOLINE
LOCOMOTIVES

3½ and 6 Tons
Any Gauge Track
Haul It Economically
Send for Bulletin

The Burton Engineering & Machinery Co.
Cincinnati, Ohio, U. S. A.

All sizes and types of light steam

LOCOMOTIVES
LOCOMOTIVE CRANES

Davenport Locomotive Works
Davenport, Iowa

PLYMOUTH
Gasoline Locomotives

Take the Burden of the Haul

The first big cost that confronts is the transportation of materials—whether in the rough or finished product.

Coal and ore must go from vein to shaft.

Big timber from stump to mill.

Bulky cane from field to rolls and refinery.

Loosened earth from excavation to fills or dumps.

Road materials must follow workmen along the stretch of completed highway.

Mud and refuse must go from dredge to discard.

Stone from quarry to point of shipment.

Clay and marl from pit to pulverizer.

Bulky materials in the work must be taken from plant to plant.

No Matter What The Problem

No matter what the enterprise or industry, if haulage is a problem, then the Plymouth is the solution.

The Plymouth Gasoline Locomotive is the pioneer in industrial haulage. It has been the color-bearer for a score of years. It is the pace-maker with more speed, more power and more years of service.

Have you a haulage problem? Do you want to do more work for less cost and more profit? Do you want a way out of the lack of men and teams?

Then adopt the Plymouth way. Let the Plymouth take the grief and burden. Investigate now.

Our Engineers are at your service.

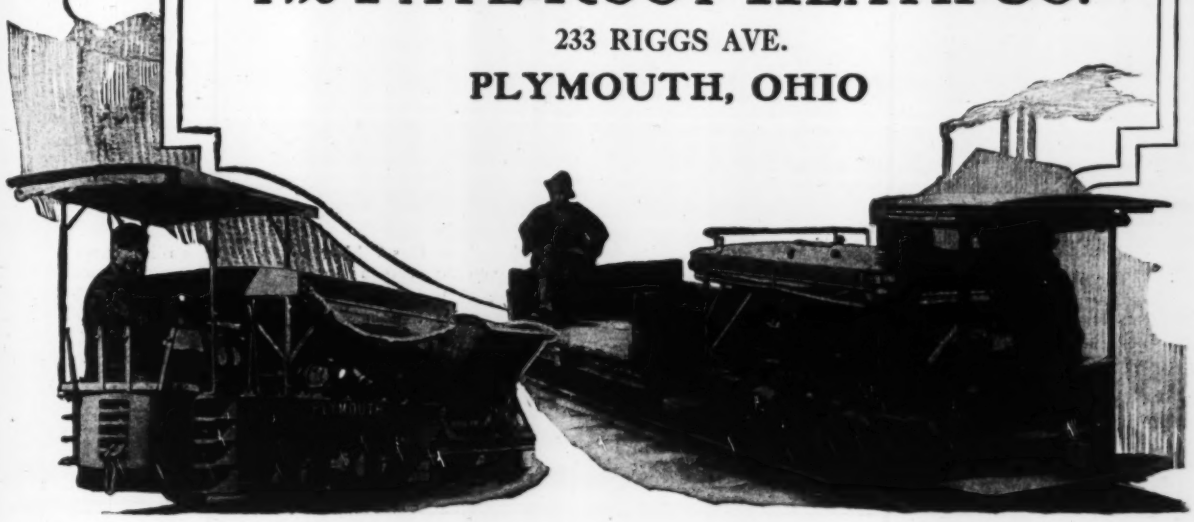
Our bulletins are full of industrial information and haulage solutions.

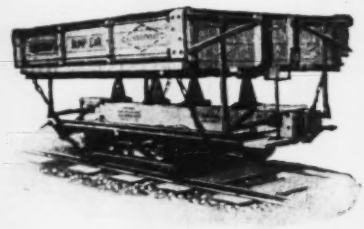
Write for them.

The FATE-ROOT HEATH CO.

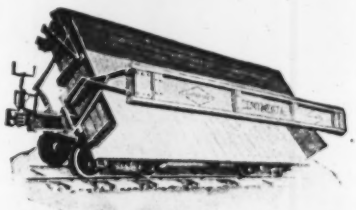
233 RIGGS AVE.

PLYMOUTH, OHIO





CONTINENTAL



"Built stronger to wear longer"

Continental Dump Cars Are Standard Equipment

The engineering department of the Continental Car Co. are never satisfied. Their every thought and experiment is striving for a still better construction. Further, these experiments are not made at the expense of our customers.

The result is that the Continental Dump Car represents all that is efficient and is a splendid example of over-values.

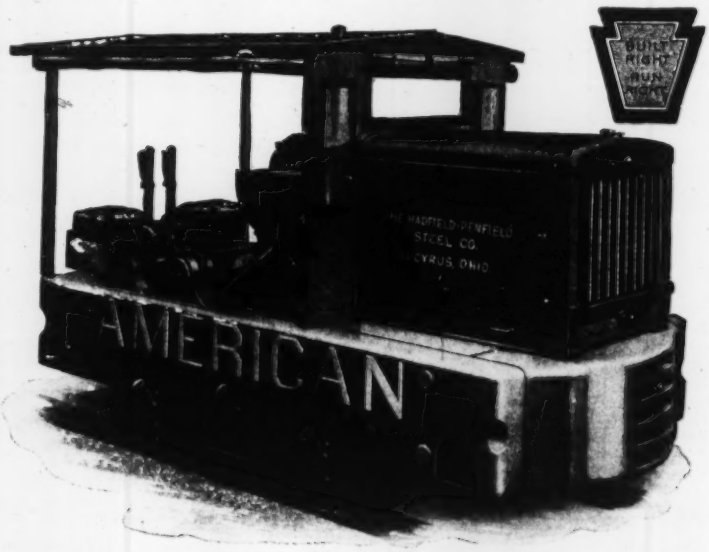
SEND US YOUR REQUIREMENTS.

CONTINENTAL CAR COMPANY OF AMERICA

Incorporated

LOUISVILLE, KENTUCKY

Contracting for Profit



Profit in Contracting depends upon efficiency.

The American "Gas-O-Motive" speeds up the equipment and the organization.

Built extremely staunch it is impervious to hard usage of contracting gangs. It stands up under even unfair treatment.

It is always on the main track working. Never on the side track for tinkering or tampering.

Simple in design it is safe in the hands of even an incompetent.

Quick in action, it is here, there and everywhere doing the work of two ordinary locomotives.

Ample Built In stress factors equip it for heavy work and keep it at it. Continuous service invited.

The American is Friction drive. Hercules motor. Efficient cooling system. Telescopic coupling in transmission housing. Self-aligning Axle. Direct full vision ahead. Drive chain run in oil. Positive 4-wheel sander. Parts accessible.

The American Gas-O-Motive represents an investment costing you 50 cents a day; it would be worth many times that to you.

Built in several sizes. Get specifications, price and delivery.

The Hadfield-Penfield Steel Co., Bucyrus, Ohio, U. S. A.

Locomotive Sales Dept., 404 Hippodrome Bldg., Cleveland, Ohio

VULCAN

Five winters of contracting work without a breakdown—even in the coldest weather.

The record sheets on this VULCAN Locomotive show that it hauled 2,000,000 cubic yards of dirt in the two and one-half years, or slightly more than 2400 cubic yards per day with an average of 32 trains and a total daily run of nearly sixty miles. A typical VULCAN record.

VULCAN IRON WORKS

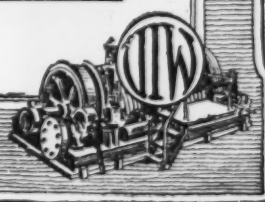
Established 1849

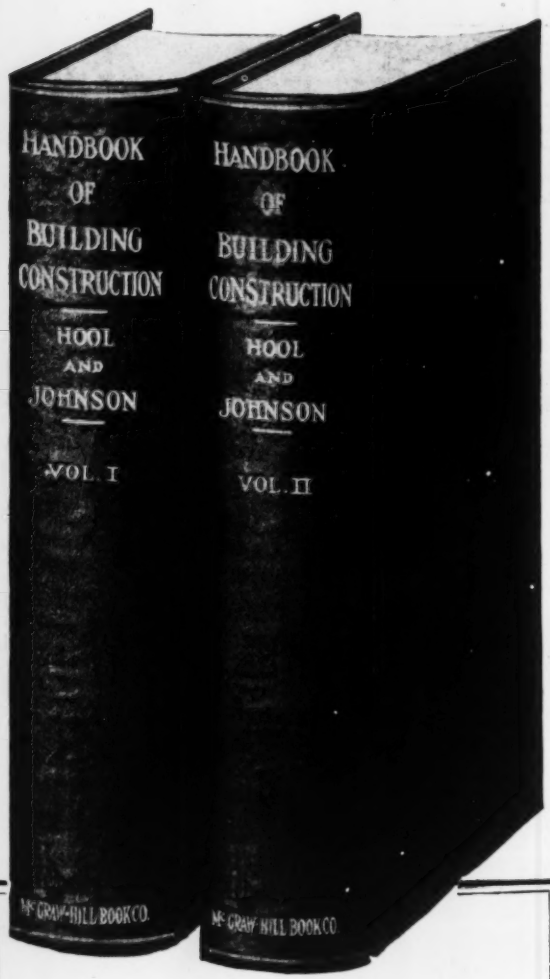
1737 Main Street, Wilkes-Barre, Pa.

Vulcan

Locomotives

VULCAN





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Editors-in-Chief

George A. Hool and Nathan C. Johnson

Assisted by 46 Specialists. Two Volumes (not sold separately). 1474 pages, 6 x 9, flexible, fully illustrated.

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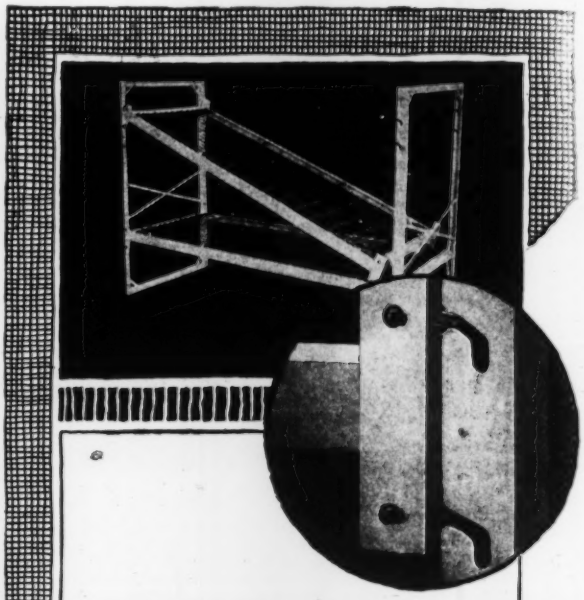

Economy

Contractors are finding it economical to put in the new Romelink "99" bunk, because it is permanent.

The unique double-locking button system of the "99" bunk does away with supports and braces, the weakness of the old-style knockdown. Any husky can slide the four pieces into place in a moment and the whole bunk immediately locks with absolute rigidity. No amount of hard usage will affect it. Nine men were crowded on a double-tier Romelink "99" at our shop. There was neither sag nor sidesway, just absolute rigidity.

When you are set for the next job, the "99" is ready to go along with you. Equipped with the Romelink sagless, rustless spring-fabric, it stands up under years of usage and proves its ultimate economy in dollars and cents.

Railroads and contractors are installing this new system. Write for detailed information.

Southern-Rome Company

Branch of
Rome Metallic Bedstead Company

633 West Pratt Street,
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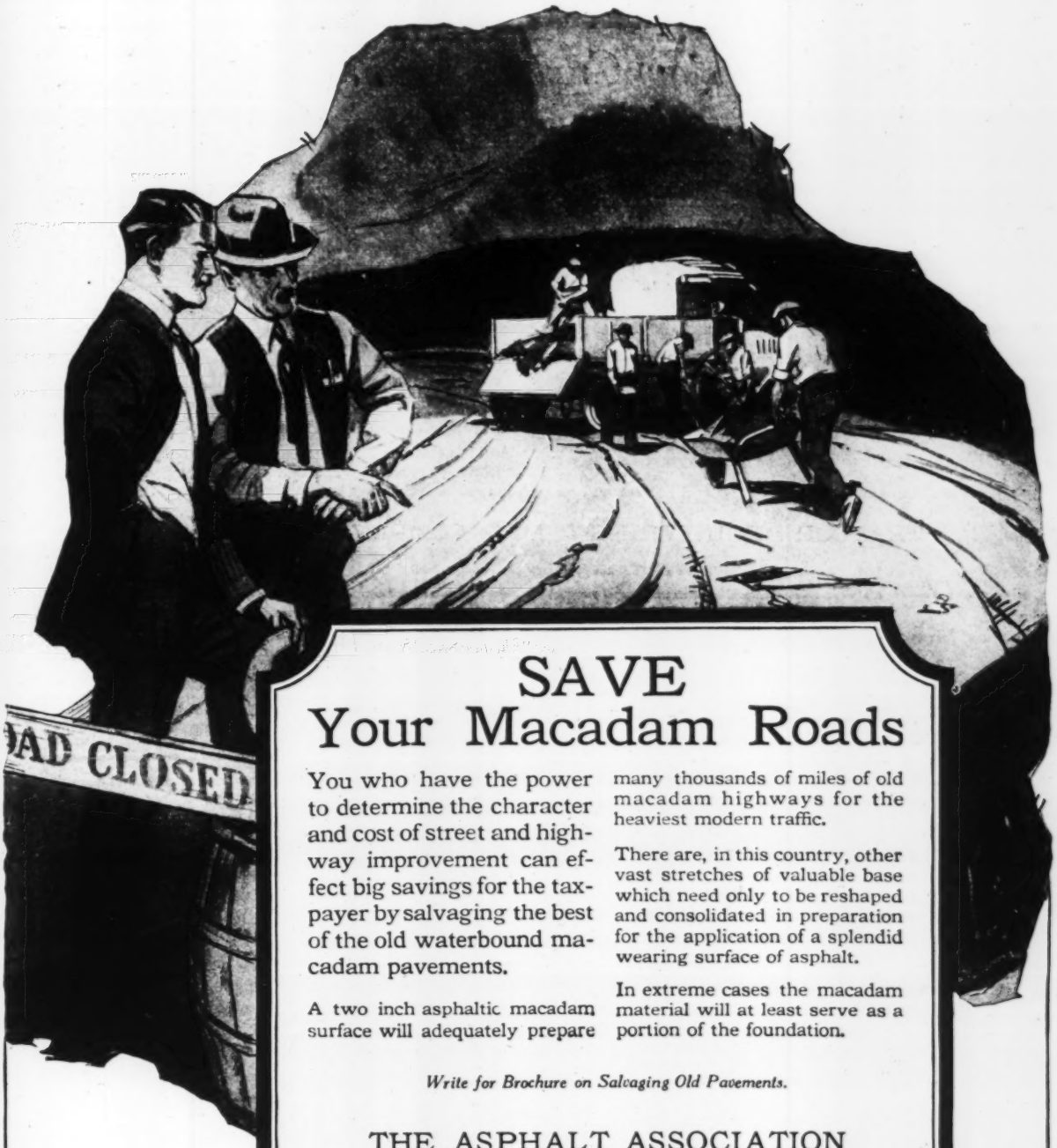
ROME LINK "99"



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You who have the power to determine the character and cost of street and highway improvement can effect big savings for the taxpayer by salvaging the best of the old waterbound macadam pavements.

A two inch asphaltic macadam surface will adequately prepare many thousands of miles of old macadam highways for the heaviest modern traffic.

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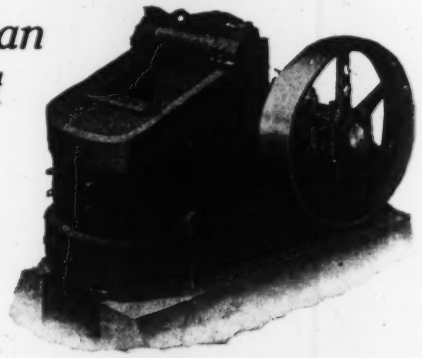
Traylor "Bulldog" Jaw Crushers Mean a Saving at Any Crushed Stone Plant



One method of designing crushers is to make them so massive throughout that it is practically impossible for them to be subjected to strain. Yes, they crush but the cost of operation is terrific.

Traylor Engineers strove to design the lightest yet the strongest crusher possible, that's why the frame of every "Bulldog" Jaw Crusher has a steel band shrunk on it top and bottom and all are equipped with the "Bulldog" Toggle system, the pitman of which is by far the lightest yet strongest of its kind being made of wrought-steel tension members.

And it's this fine balance of weight and strength that makes the "Bulldog" crusher so economical to the user. Ask your neighbors about the power costs of their "Bulldog" Crushers.

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New York *Chicago* *Pittsburgh* *Los Angeles* *Spokane*

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For Immediate Delivery

10 in. x 20 in. Type "A" Jaw Crusher
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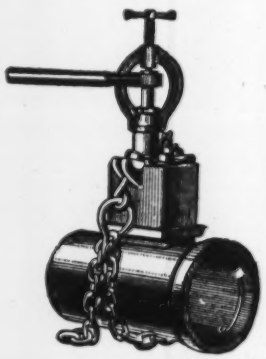

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The sidewalk only expands $2\frac{3}{8}$ inches in a hundred yards *but if no provision has been made to absorb* this expansion, the walk will buckle.

The reason you don't see more walks and roads with places like this ⌒ is because most of them buckle down like this ⌣ .

All the expansion or contraction for a long stretch may focus at one point and RUIN THE WALK AT THAT POINT.

You can't prevent expansion and contraction, it is nature's immutable law. It is as certain as death and taxes.

But Elastite joint laid at proper intervals will absolutely absorb expansion and contraction and prevent damage.

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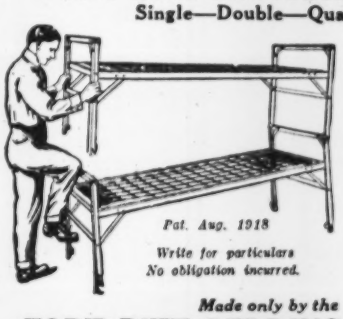
Single—Double—Quadruple



Pat. Aug. 1918
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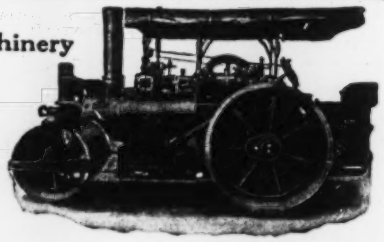

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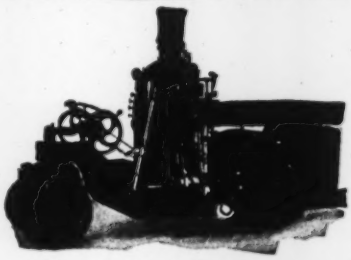

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Much of their work endures today. Wooden dwellings, barns, wharves, warehouses—two hundred to three hundred years old—models of simple architecture and still serviceable.

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The good lumber is here today in just as available supply as it has ever been. But discrimination in choosing it for the particular purpose it is to perform is not what it used to be.

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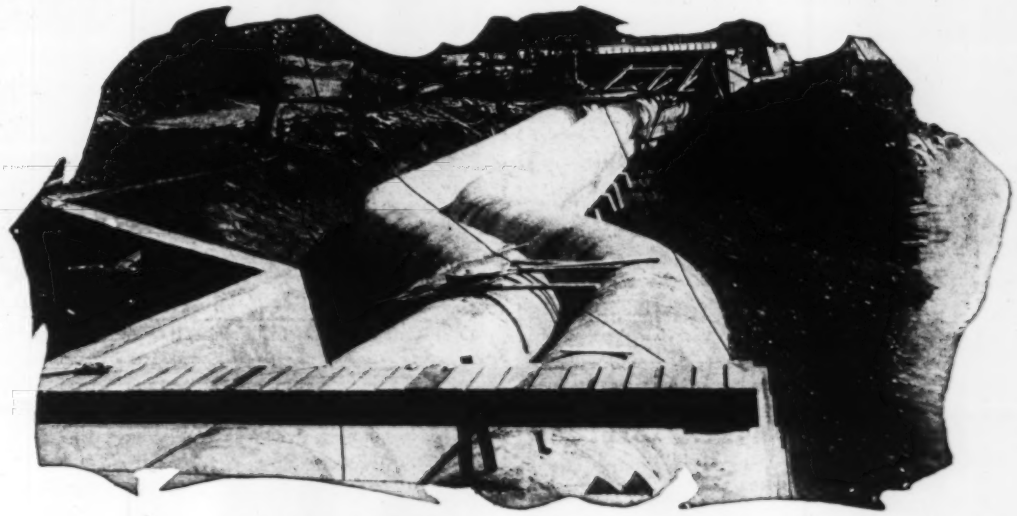

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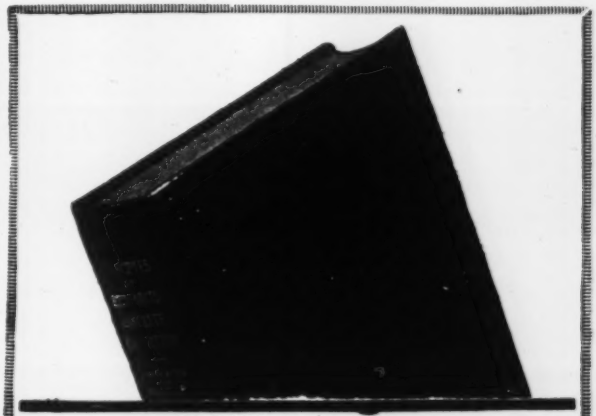

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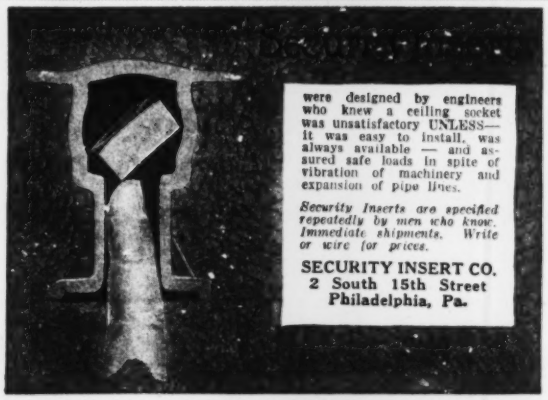

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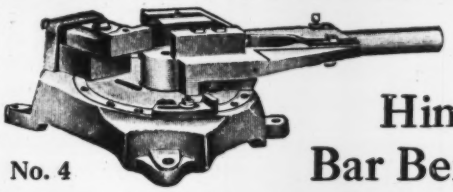

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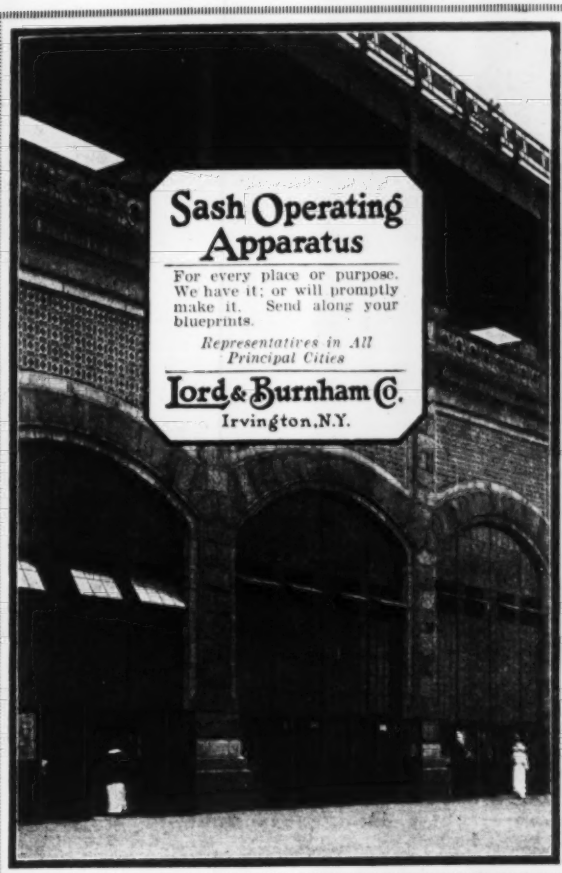
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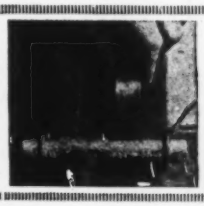
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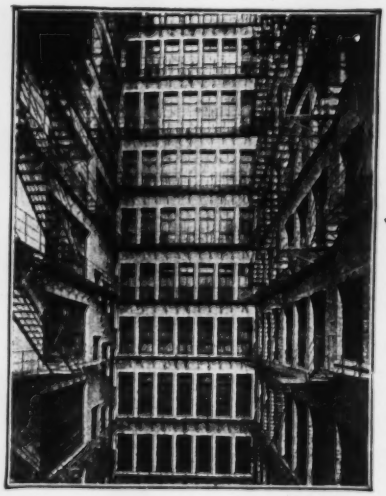

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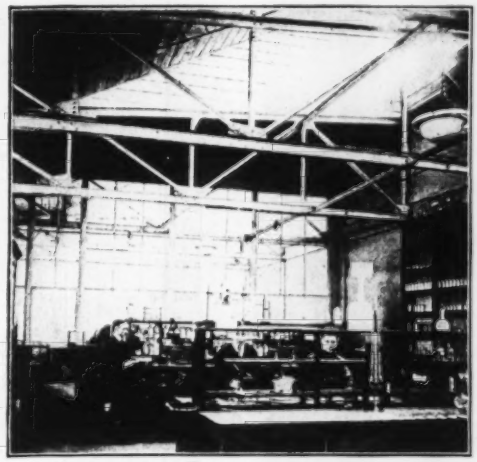

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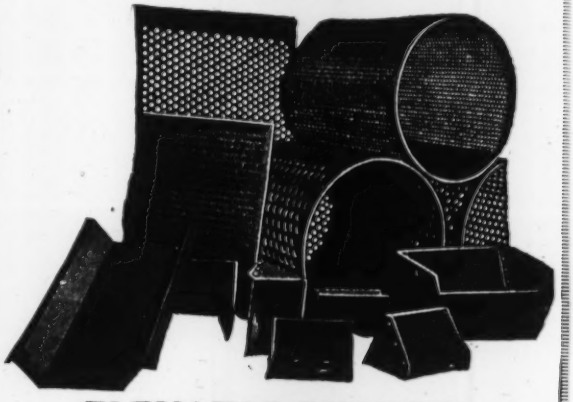

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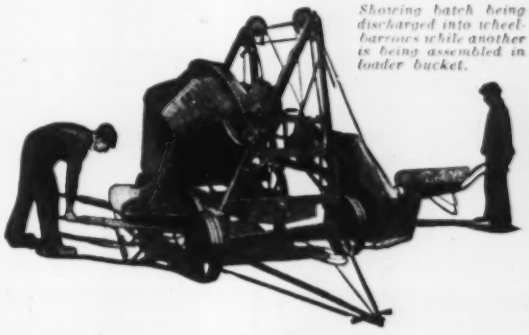

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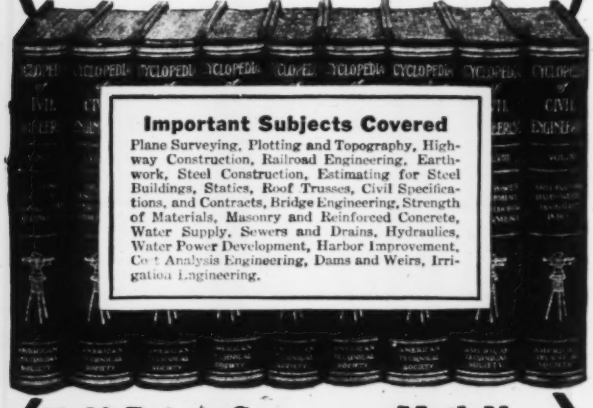

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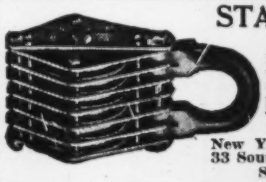

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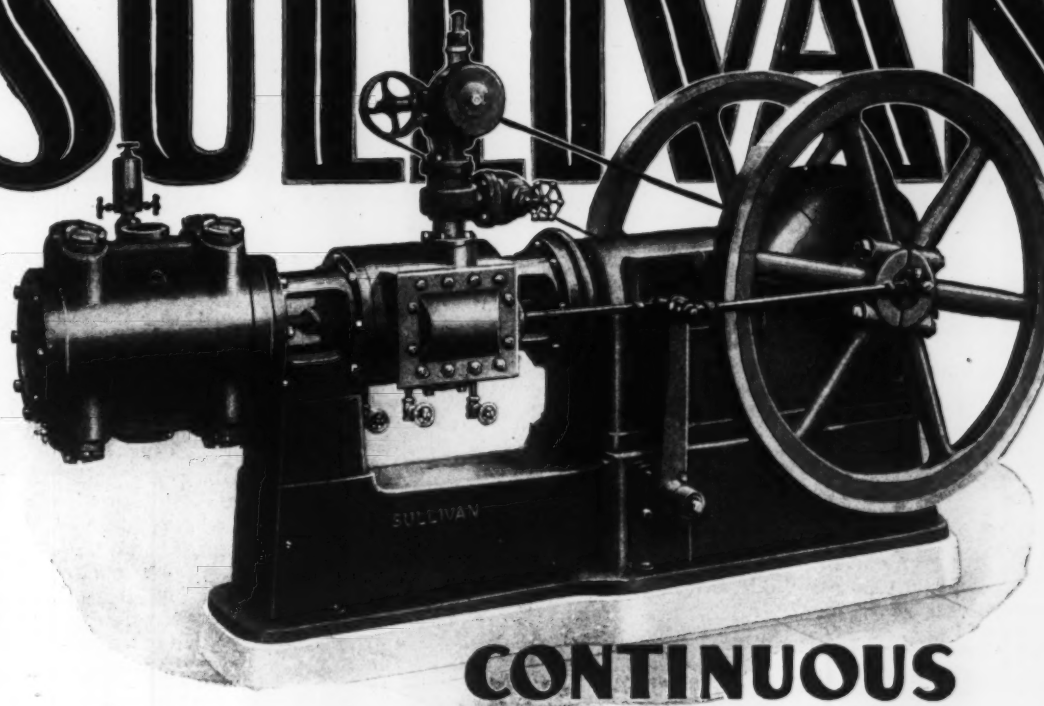

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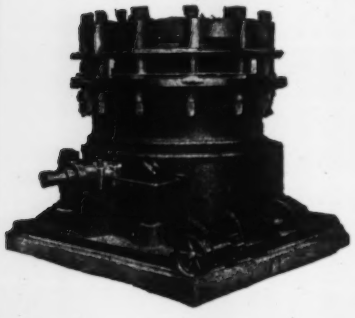

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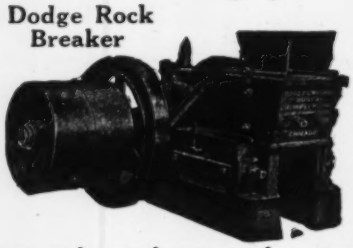

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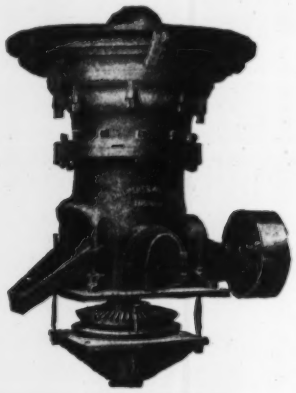

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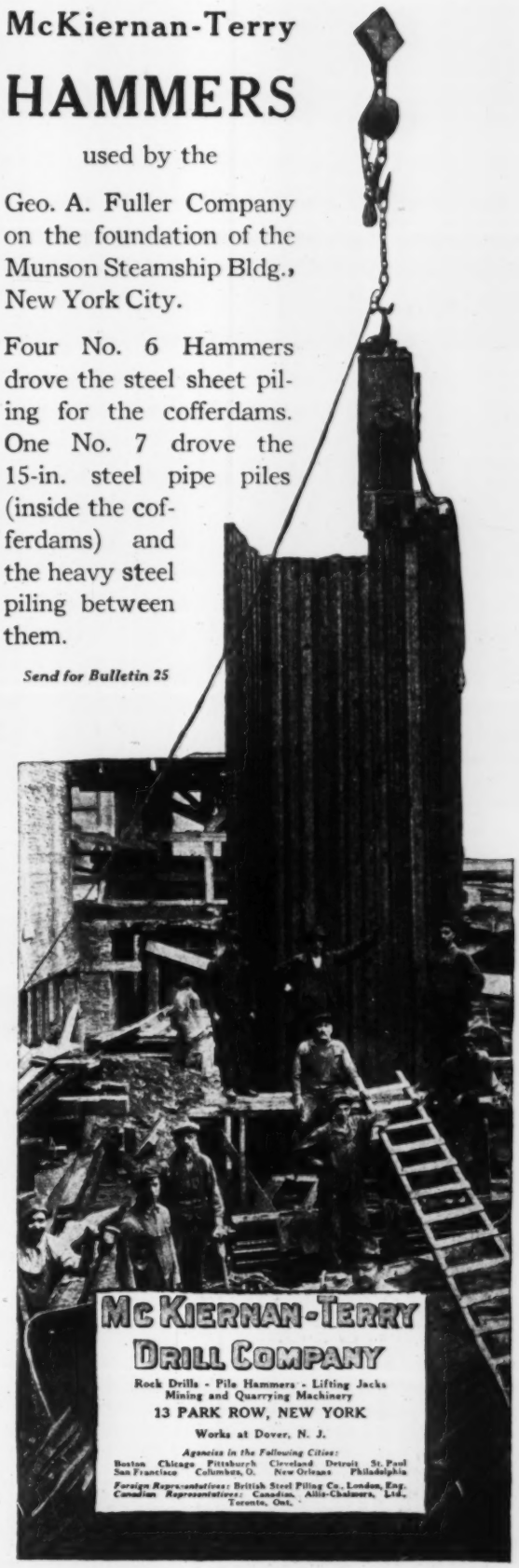
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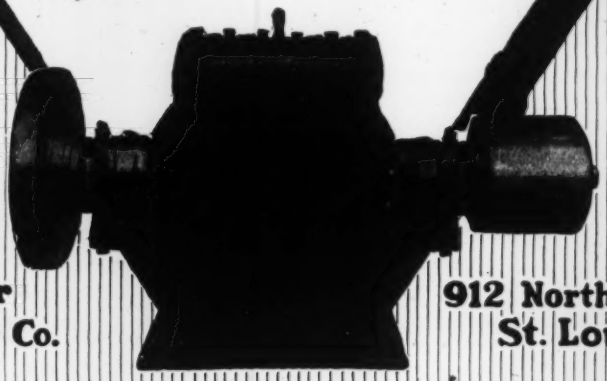

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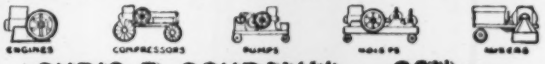

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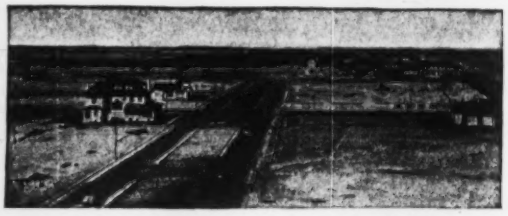

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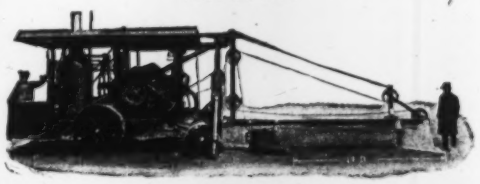

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"HERCULES" (RED STRAND) WIRE ROPE

(REG. U.S. PAT. OFF.)

Its Strength and toughness make it durable, safe and economical

THE ORIGINAL COLORED STRAND WIRE ROPE
MADE ONLY BY

A. LESCHEN & SONS ROPE Co.

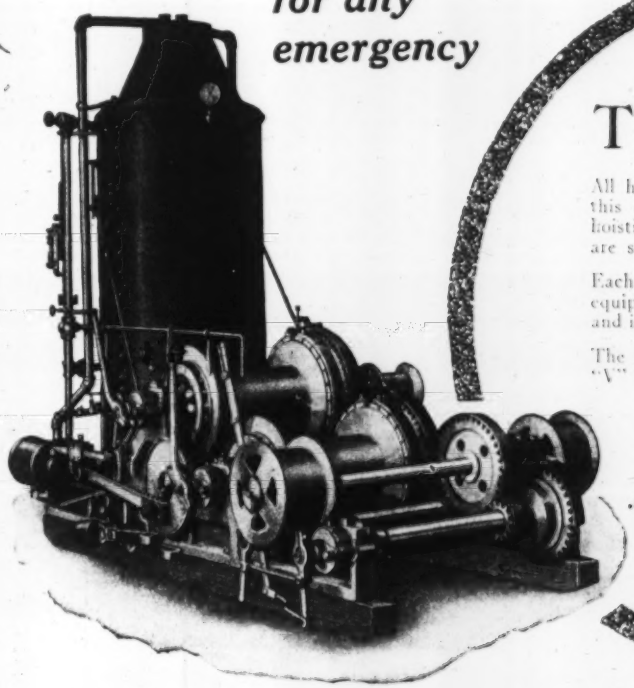
ESTABLISHED 1857
ST. LOUIS, MO.
NEW YORK. CHICAGO. DENVER.
SAN FRANCISCO.

Crescent Wire Rope

WIRE Rope of every kind and for every purpose—Accessories, too. Let us send catalog and quotations.

GEO. C. MOON CO., Garwood, N. J.
New York, 124 White St. Cleveland, Rockefeller Bldg. San Francisco and Portland, Ore., Rolph, Mills & Co. 52

Swing Drum Speed is Ample *for any emergency*



THE "Slack" is taken care of—and the swing cable is wound upon one drum and unwound on the other.

All hoisting and swing lines run clear with this double cylinder, double friction—drum hoisting engine—because the swinging drums are separated.

Each hoisting drum is bronze bushed, equipped with powerful ratchets and pawl, and is controlled by a sturdy foot brake.

The friction is of the powerful DOUBLE "V" TYPE bolted to special cut tooth gears.

This affords but an inkling of its advantages. Write for Bulletin 131 which goes into details.

ORR & SEMBOWER, Inc.,
Reading, Pa.

48 Church St., New York; 206 N. Clinton St., Chicago; Commonwealth Building, Philadelphia; 6 Beacon St., Boston; 184 Brush St., Detroit; 406 Builders Exchange, Baltimore.

REPRESENTATIVES: Pittsburg Pa., Trahter Maufacturing Company; Kansas City, Mo., Bunting Hardware Company, Cleveland, Ohio, W. M. Pattison Supply Company; Columbus, Ohio, Seibert-Millburn Company; San Antonio, Tex., Alamo Iron Works; Mobile, Ala., Turner Supply Co.; New Orleans, La., Haubtman & Loeb Co.; Landes & Company, Denver, Colorado; Landes & Company, Salt Lake City, Utah; Hofius-Ferris Equipment Co., Spokane, Washington; Higgins Machinery Co., Seattle, Washington; Joshua Hendy Iron Works, San Francisco, California; Henry W. O'Grady, Richmond, Va.

Proportioned for Fast Work

Every detail of the Stroudsburg Engine is designed to take full advantage of the 125 pounds boiler pressure.

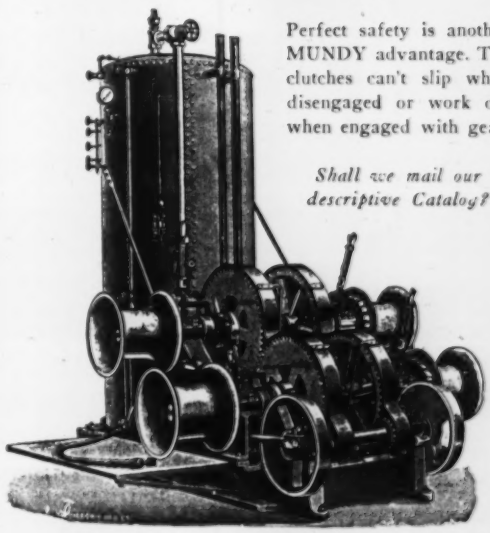
Stroudsburg
Hoisting Engines

Ask any Stroudsburg user what kind of service he gets—from the engine and the works.

STROUDSBURG ENGINE WORKS
66 North 3rd Street, Stroudsburg, Pa.

Dependable Power for Almost Any Load With the

MUNDY



Perfect safety is another MUNDY advantage. The clutches can't slip when disengaged or work out when engaged with gear.

Shall we mail our descriptive Catalog?

J. S. Mundy Hoisting Engine Co.
722-740 Frelinghuysen Avenue
NEWARK, N. J.

LIDGERWOOD HOISTS

Steam—Electric—Gasolene DERRICKS—CABLEWAYS

For Every Type of Contracting Work

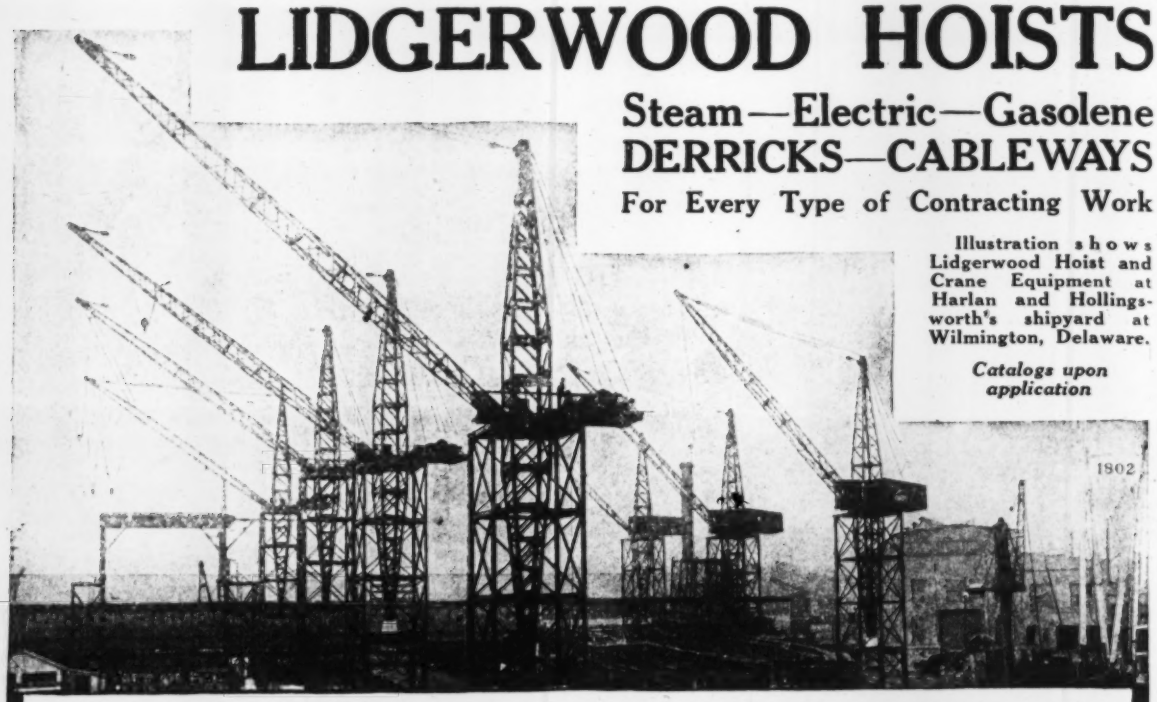


Illustration shows Lidgerwood Hoist and Crane Equipment at Harlan and Hollingsworth's shipyard at Wilmington, Delaware.

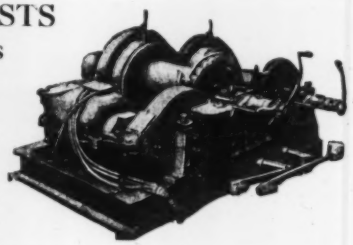
Catalogs upon application

LIDGERWOOD MANUFACTURING COMPANY

96 Liberty Street, NEW YORK, N. Y.

Philadelphia Pittsburgh Chicago Cleveland Los Angeles Seattle Detroit Woodward, Wight & Co., Ltd., New Orleans
Canadian Allis-Chalmers, Ltd., Toronto. London, England.

FLORY HOISTS Pay Dividends



Rugged in design; liberal, well-finished, wearing surfaces—dependable.

A Flory Hoist for every purpose

Complete catalog of steam and electric hoists, derrick fittings, cable-ways, etc., sent on request.

Write, wire, or telephone today.

S. Flory Mfg. Co., ***Works*: Bangor, Pa.**

New York 95 Liberty St. Chicago Monadnock Bldg. Pittsburgh 1st Nat'l Bank Bldg.
Hartford Conn., K. B. Noble Co.

Dobbie Derricks and Hoists

Stock of Fittings, Blocks, Sheaves, Winches, etc., carried by our agents—
G. S. Green Co., New York.
Beckwith Machy. Co., Pittsburgh.
Beckwith Machy. Co., Cleveland.
P. I. Perkins Co., Boston.

DOBBIE Foundry & Machine Co.
Manufacturers
Niagara Falls, N. Y.

USE THIS COUPON

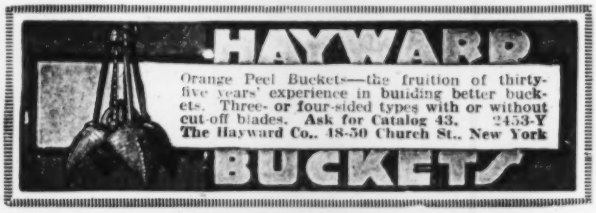
SEND FOR BULLETIN H

ELESCO SUPERHEATERS

for Steam Shovels and Stationary Boilers
Pipe Coils for all purposes

Name ..... Position .....
Company..... Address .....
I am interested in Steam Shovels ☐ Stationary Boilers ☐ Pipe Coils ☐

LOCOMOTIVE SUPERHEATER CO.
General Offices: 30 Church St., New York City
Chicago People's Gas Bldg. Boston 53 State St. Pittsburgh Oliver Bldg.



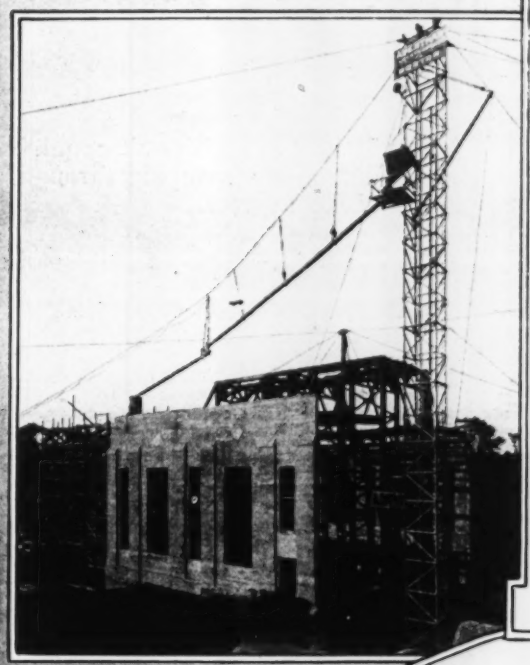
Orange Peel Buckets—the fruition of thirty-five years' experience in building better buckets. Three- or four-sided types with or without cut-off blades. Ask for Catalog 43. 2453-Y
The Hayward Co., 48-50 Church St., New York

WHITING CORPORATION

(formerly Whiting Foundry Equipment Co.)
General Offices and Works: Harvey, Ill.
FOUNDRIES EQUIPPED COMPLETE
CRANES OF ALL TYPES

MEAD-MORRISON

LIFTS THE LOAD OF INDUSTRY



Dependability

The name Aberthaw in the building industry represents the utmost in construction. The Aberthaw Construction Company has established a unique reputation for taking hold of a job and turning it out on schedule time.

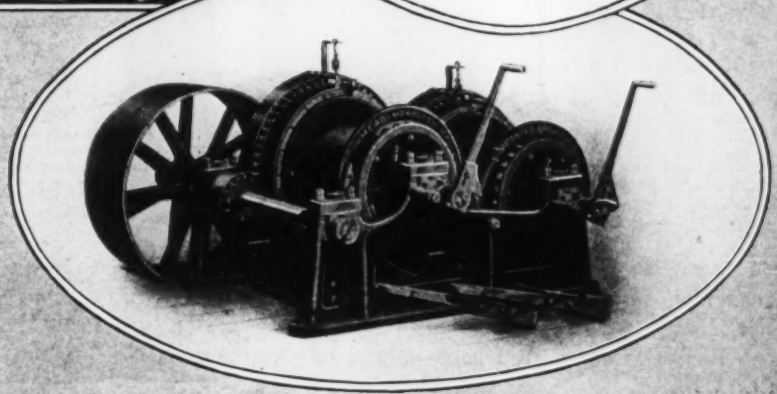
Mead-Morrison Material-handling Equipment has helped this firm in building up and maintaining this record of achievement and dependability. On every Aberthaw job, Mead-Morrison Equipment is used.

The photo here reproduced shows one way in which Mead-Morrison is of service to the Aberthaw Company. The job is at the Great Falls Mfg. Co., Somersworth, N. H., where Mead-Morrison Steam and Electric Hoists and Grab Buckets are doing splendid and dependable work—day in and day out.

AGENTS:

Edward R. Baron Co.	Los Angeles, Cal.
Edward R. Baron Co.	San Francisco, Cal.
Beckwith Machinery Co.	Pittsburgh, Pa.
Beckwith Machinery Co.	Cleveland, Ohio
Beelick Machinery & Supply Co.	Milwaukee, Wis.
The Bomack Machine Co.	St. Louis, Mo.
The Bonfect Ingersoll Co.	St. Paul, Minn.
J. W. Bopp & Co., Inc.	Detroit, Mich.
The Equity Equipment Co.	Cincinnati, Ohio
The George Fife Equipment Co.	Indianapolis, Ind.
P. I. Perkins Co.	Boston, Mass.
T. J. Pratt	Norfolk, Va.
Steel Products Corp.	El Paso, Texas

Warehouses and stock on hand at Boston, Pittsburgh and Chicago



REGISTERED IN U.S. PATENT OFFICE — M M & M — MEAD-MORRISON LIFTING DEVICES

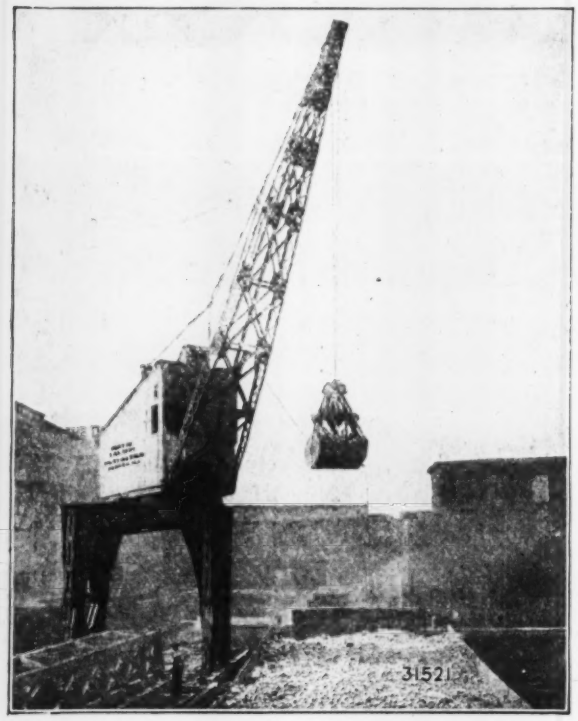
ENGINEERS & CONTRACTORS
COAL HANDLING & HOISTING MACHINERY

MEAD-MORRISON
MANUFACTURING COMPANY

1229 Prescott Street, East Boston, Mass.
Welland, Canada

NEW YORK
SINGER BUILDING
CHICAGO
MONADNOCK BLDG.
MONTREAL
255 BEAVER HALL HILL

LAMBERT



CRANES

are designed for

SPEED

They are a good investment. They are built with years of experience behind them.

We specialize in Hoists—Derricks—Cranes

for bucket work where large output is desired. Low costs and continuity of service are assured with Lambert Hoists. Our Engineers are at your service. It pays to buy a good hoist—it pays to buy a LAMBERT.

Lambert Hoisting Engine Company

Main Office and Works:

117 POINIER ST. (Foot of South Broad St.) NEWARK, N. J.

BRANCHES:

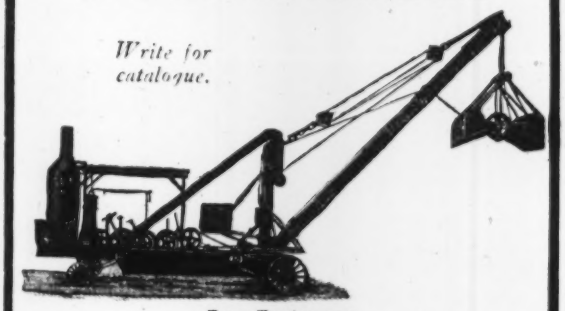
NEW YORK CITY, 30 Church St.
BOSTON, 39 Hayward St.
NEW ORLEANS, Hibernia Bank Bldg.
BALTIMORE, 131 So. Howard St.
CHICAGO, Old Colony Bldg.
PITTSBURGH, Diamond Bank Bldg.
CLEVELAND, Citizens' Bldg.
INDIANAPOLIS, Merchants' Bank Bldg.

TERRY

For a quarter of a century building the highest type

CRANES and DERRICKS

Write for catalogue.



Terry Tractorcrane

A speedy and rugged crane requiring no outriggers, swinging through an arc of 300 degrees.

TERRY

MANUFACTURING COMPANY

Grand Central Terminal

New York City

Plant—Kearny, Newark, N. J.

O. K. Heavy Duty Double Drum Geared Hoist with Kerosene Engine and Boom Swinger

Designed for use on derricks and overhead cranes for loading and unloading materials. Double drum boom swinger operated by one lever. Clutch consists of cone metal friction type with quick spring release. Each drum equipped with end thrust ball bearings—attached to hoist by sprocket and chain. Bearings babbitted of split adjustable type.

Next time you need a hoist write for our new catalog.

O. K. Clutch & Machinery Co., Columbia, Pa.

ROEBLING WIRE ROPE

Welding Wire **Wire Rope Fittings**

John A. Roebling's Sons Co., Trenton, N. J.

Bay City Walking Land Dredges

Built any width. For new ditches or clean-out work. Spans the ditch. Low cost installation, moving, labor, fuel and repairs. Two-man operated. Equipped with oil engine. Catalogs on request.

Bay City Dredge Works, 2601 Center Ave.

Bay City, Mich.

What Makes One Wire Rope Far Outwear Another?

Wire ropes of the same type look alike, but one rope may last twice as long as another.

There are very good reasons for this.

Wire rope is ordinarily made up of six strands of either nineteen or seven wires each. When the rope is used for hoisting or hauling, the wires and strands rub against one another as well as against the pulleys, rollers and other objects.

The friction which arises from this internal rubbing is often as big a factor in the wear of the rope as the external friction and abrasion.

For this reason the twisting of the wires into strands and the *lay* of the strands as well as the internal lubrication are highly important. In a properly made wire rope, the wires and strands are so proportioned and laid as to minimize internal friction and provide amply for external wear. Careful provision has likewise been made for internal lubrication.

One of the reasons that HAZARD Wire Ropes have such unusual records of performance in service, is because they receive the careful attention to these three vital factors.

We have interesting evidence to show of the typical service of economy given by HAZARD Wire Ropes. Where shall we send you this story?

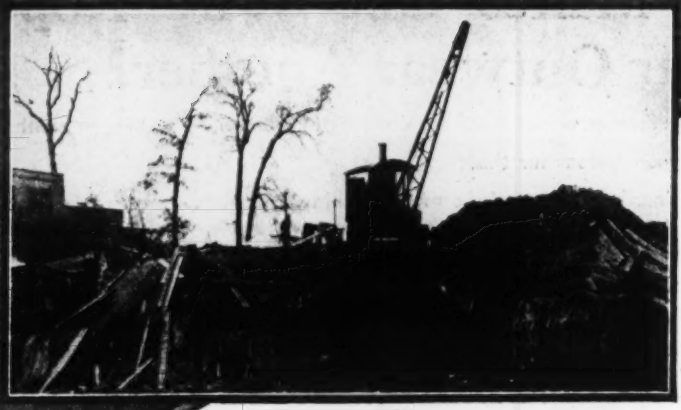
HAZARD MANUFACTURING CO.

Makers of Quality Wire Rope Since 1848

NEW YORK 533 Canal St. | CHICAGO 552 W. Adams St. | PITTSBURGH 1st Nat'l Bank Bldg. | DENVER 1415 Wazee St.

Wilkes-Barre, Pa.

HAZARD WIRE ROPE



LITTLE GIANT ROAD CRANE

What Would You Do

Without mechanical equipment? Engineering projects that are now accomplished easily and with a celerity that is astonishing, are only made possible by mechanical equipment. And as accomplishment is strengthened by means of mechanical equipment, likewise labor costs are decreased.

A machine that is capable of performing in a single task, but an endless assortment, brings about first, these desired advantages of mechanical equipment; second, labor saving possibilities multiplied by its scope of application.

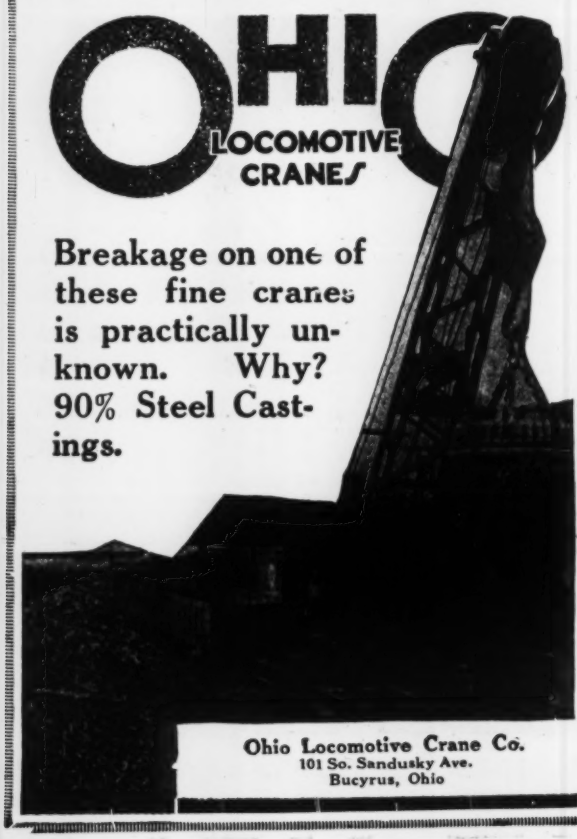
No one machine has ever been developed in this direction that in any way equals the LITTLE GIANT ROAD CRANE. Portable and self-propelled; handling tag line, orange peel or clam shell bucket; working practically anywhere a truck might go, give it range to accomplish the things that mean money to every contractor.

Address Dept. A.

Due to increased manufacturing facilities, we are now in position to accept orders for immediate delivery.

The Locomotive Crane Company
OF AMERICA
CHAMPAIGN ILLINOIS

OHIO
LOCOMOTIVE CRANES



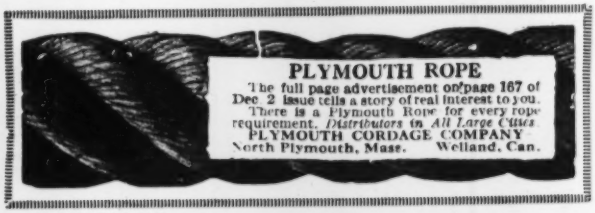
Breakage on one of these fine cranes is practically unknown. Why? 90% Steel Castings.

Ohio Locomotive Crane Co.
101 So. Sandusky Ave.
Bucyrus, Ohio

Byers Cranes in Two Types:—

1—Full Circle Swing
2—Half Circle Swing
(*The "Auto-Crane"*)

The John F. Byers Machine Co.
250 Sycamore St., Ravenna, Ohio



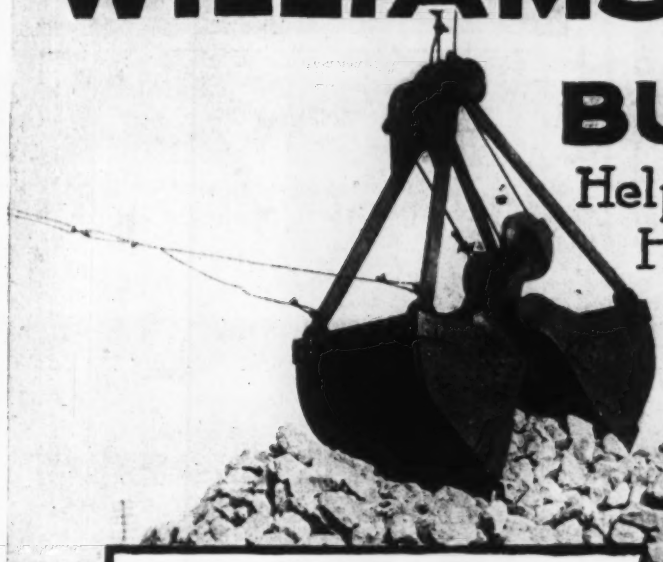
PLYMOUTH ROPE
The full page advertisement on page 167 of Dec 2 issue tells a story of real interest to you. There is a Plymouth Rope for every rope requirement. *Distributors in All Large Cities*
PLYMOUTH CORDAGE COMPANY
North Plymouth, Mass. Welland, Can.

The Underpinning & Foundation Co. 290 Broadway, New York City

Difficult Foundations
Pneumatic, Steel, Concrete and Wooden Pile Foundations. Bridge Piers; Underpinning Heavy Buildings.

"HERCULES" STEEL PILES

WILLIAMS



BUCKETS

Help Reduce The High Cost Of Sugar

Far fetched?—Not at all. Limestone is used in the bleaching of sugar. The more efficient the operation of the various processes in this connection—the greater the production—and naturally the lower the cost of sugar.

So much for sugar. As far as buckets go there are none can handle limestone and stand up under the hard work involved therein—and suffer as little from the effects as a **Williams Bucket.**

Here's a "Williams" handling Limestone at the Michigan Sugar Co., Saginaw. It handles not only limestone but sand, gravel and all other loose material about the plant.

Get the full particulars about its triangular construction and sturdy build. Write today for Catalog.

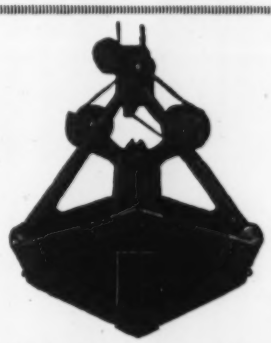
G. H. Williams, Erie, Pa.
Room 317, 30 Church St., New York City

BUILT TO DIG AND LAST WHILE DIGGING

Kiesler Clam Shell

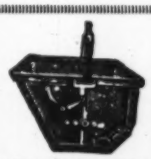
The only positive *non-lifting* clam shell bucket on the market is built by Kiesler.

The Kiesler bucket operates on the *Multi-System-Bell-Crank lever principle* producing a powerful compound scissor movement.



Jos. F. Kiesler Co.
928 W. Huron St.
Chicago, Ill.

Kiesler buckets are mechanically perfect and fully guaranteed. Send for our bulletin.



Dumping Buckets of all types, Industrial Cars, Skips, Portable Tar Heaters, Lead Melting Furnaces, Carts for hauling Concrete, Coal, Ore, etc., Forgings and Foundry Equipment.

Iron Castings **Aluminum Castings**

All kinds of Steel Plate Work up to ⅜-in. thickness.

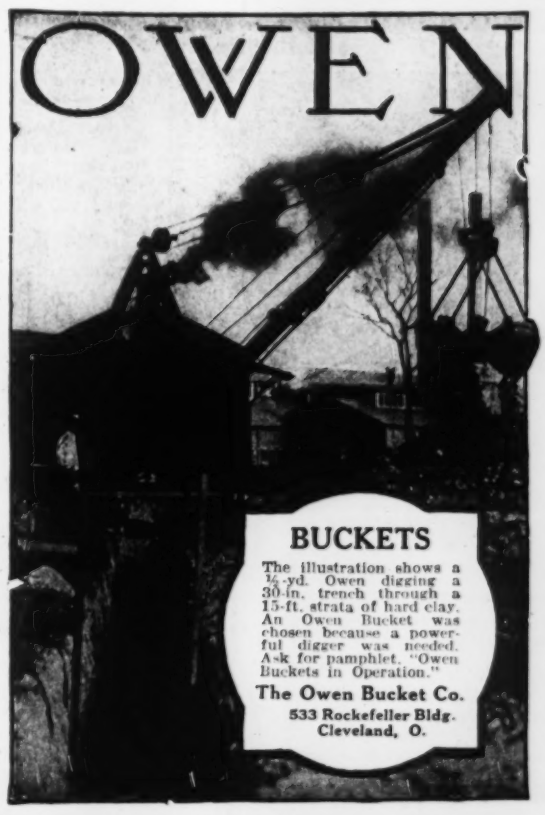
PENN FOUNDRY & MANUFACTURING COMPANY
Hill Crest, Reading, Pa.

Aden Grab Buckets

are so constructed that the counterweight does not come in contact with material, thereby insuring a greater digging power and absolutely no loss of power at any stage of the closing action. **Write for further information.**

The Advance Engineering Co.
Offices: 6543 Metta Street
Cleveland, O.

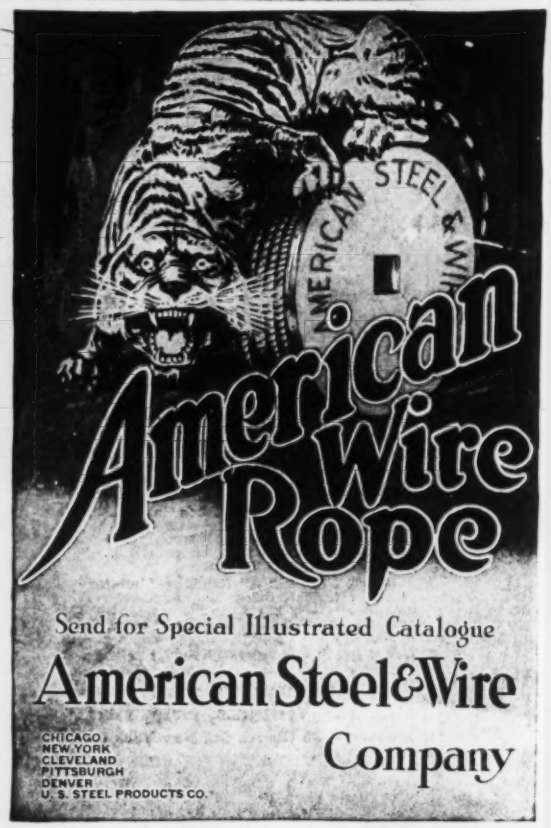
OWEN



BUCKETS

The illustration shows a ½-yd. Owen digging a 30-in. trench through a 15-ft. strata of hard clay. An Owen Bucket was chosen because a powerful digger was needed. Ask for pamphlet, "Owen Buckets in Operation."

The Owen Bucket Co.
533 Rockefeller Bldg.
Cleveland, O.

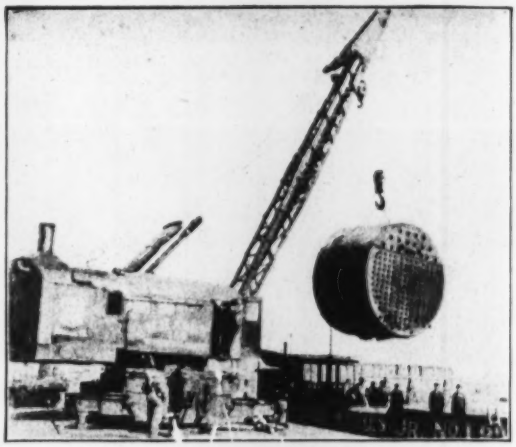


Send for Special Illustrated Catalogue

American Steel & Wire Company

CHICAGO
NEW YORK
CLEVELAND
PITTSBURGH
DENVER
U. S. STEEL PRODUCTS CO.

INDUSTRIALS



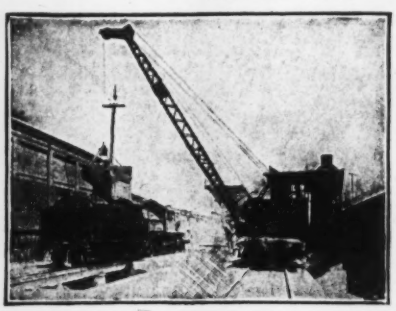
"INDUSTRIAL" CRANES OF CAPACITY AND TYPE TO MEET EVERY REQUIREMENT

The Illustration shows a Special Type X "Industrial" Crane hoisting a 60-ton, marine boiler, at the Army Supply Base, Norfolk, Va. Pass your brain-racking hoisting and transporting difficulties on to us. Very prompt deliveries can be made on any type of crane.

Send for catalog covering our entire line.

INDUSTRIAL WORKS
BAY CITY, MICHIGAN
NEW YORK 50 Church Street | PHILADELPHIA Widener Bldg. | DETROIT Book Bldg. | CHICAGO McCormick Bldg.

— In difficult work the
O. S. Dependable Locomotive Cranes and Buckets



Insure satisfaction

Correct Design
Right Material
Superior Fabrication

Orton & Steinbrenner Co.
CHICAGO, ILL.
Shops
Huntington, Ind.

For Digging or Dredging

we can furnish you buckets that will satisfy you in every way. With a minimum number of parts and husky make-up they are easily operated and stay on the job.

There are years of experience behind these buckets and we are prepared to fill your order from stock at reasonable prices.

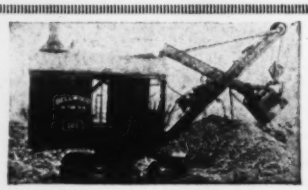
Vulcan Iron Works, Inc.
Jersey City, N. J.

We Dig and Refill Trenches

For water, sewers, gas, conduits and drains
Pipe laid by contract and installation of water systems.
Trench Machines and Backfillers For Rent
W. G. FRITZ CO., INC., *Contractors*
Essex Bldg., Newark, N. J.

GRAY STRAND WIRE ROPE
ELECTRICALLY WELDED WIRE

Wickwire Spencer Steel Corporation
Worcester, Mass. Buffalo, N. Y.
District Offices and Warehouses
New York Philadelphia Detroit Chicago Boston
San Francisco Tulsa, Okla.



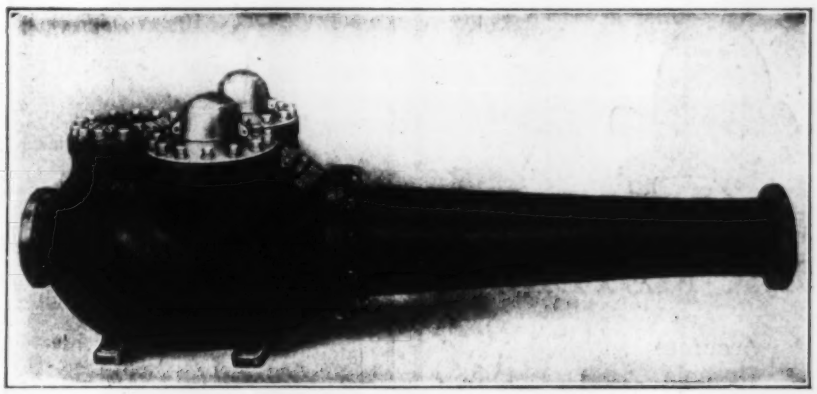
BELLWOOD
Steam Shovels

Weight 16 tons, ¾-cu. yd. dippers, full revolving on traction wheels. Deliveries in December.

Specifications and prices on request.

The Bellwood Steam Shovel Co., Inc., Bellwood, Pa.

"Mechanize Underground" with the
Shuveloder
a practical mucking machine
Lake Superior Loader Co. Duluth, Minn



Big Fires

DON'T mean loss of revenue any more. The Trident Protectus is taking care of that on many important lines.

There are more Trident Meters in service than any other make.

Neptune Meter Company
New York

The Weber Subterranean Pump is made by the Neptune Meter Company and sold under the guarantee that it will deliver at least 25 per cent. more water from the same well than any straight air lift or "booster." Or, when the yield of the well is limited, it will deliver the same quantity of water with 25 per cent. less power.

Staff of Hydraulic Engineers at your service.

"WATCH DOG"

WATER METERS

Accurate
Durable
Efficient

GAMON METER COMPANY
Main Office and Works:
NEWARK, NEW JERSEY

Jenkins Standard Iron Body Gate Valves

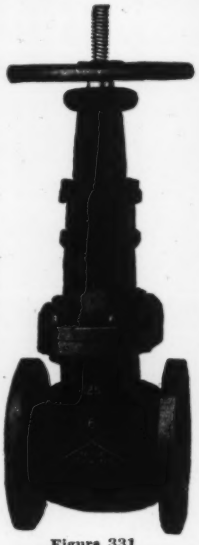


Figure 331
with steel spindle

Double face solid wedge type. Bodies and bonnets of high grade cast iron. Seat rings are bronze and gates or wedges cast iron faced with bronze rings, except in smaller sizes, in which wedges are made entirely of bronze. Improved shape of body and bonnet not only insures perfect castings free from internal shrinkage strains but secures the maximum of strength and rigidity.

Sizes 16 in. and smaller for 125 pounds working steam pressure and 175 pounds working water pressure. Sizes 18 in. and above for 100 pounds working steam pressure and 125 pounds working water pressure. Screwed or flanged, rising, or stationary spindles.
Know genuine Jenkins Valves by the name and Jenkins Diamond Mark—at supply houses everywhere.

JENKINS BROS.
New York Chicago Philadelphia Pittsburgh
St. Louis Boston San Francisco Washington
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operate accurately with a low Venturi head. Famous for sensitiveness, range and ability to measure low flow.

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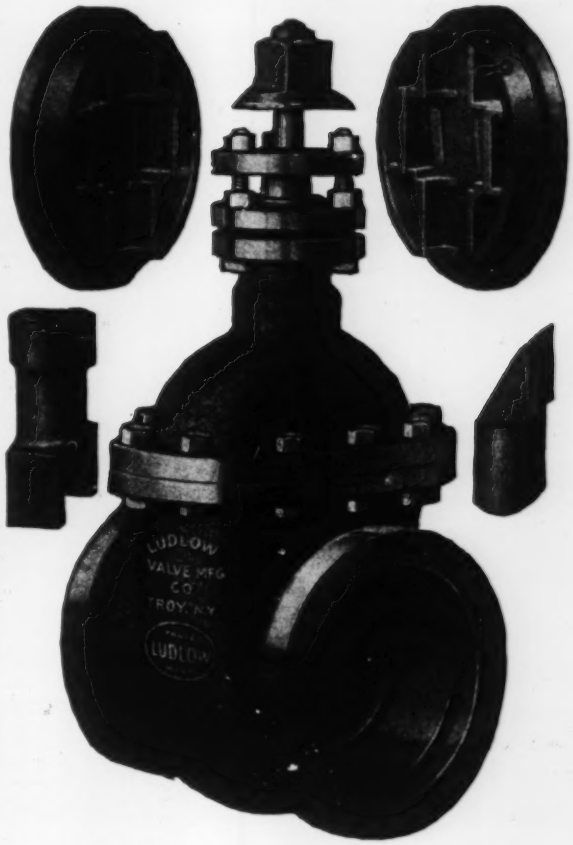

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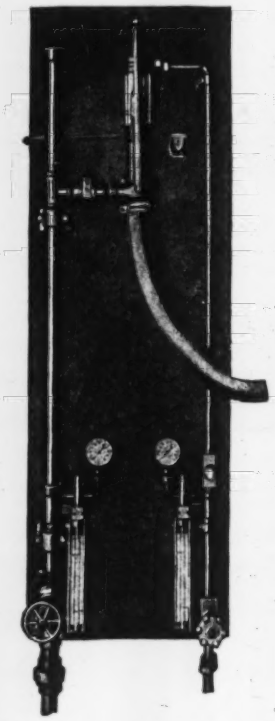

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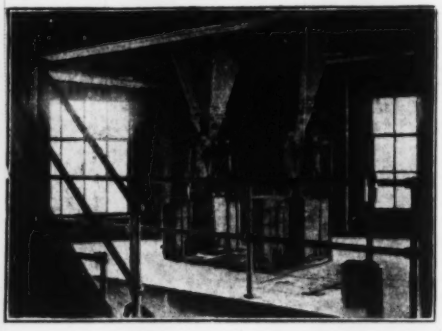
Dry Feed Purification Saves Space, Labor and money



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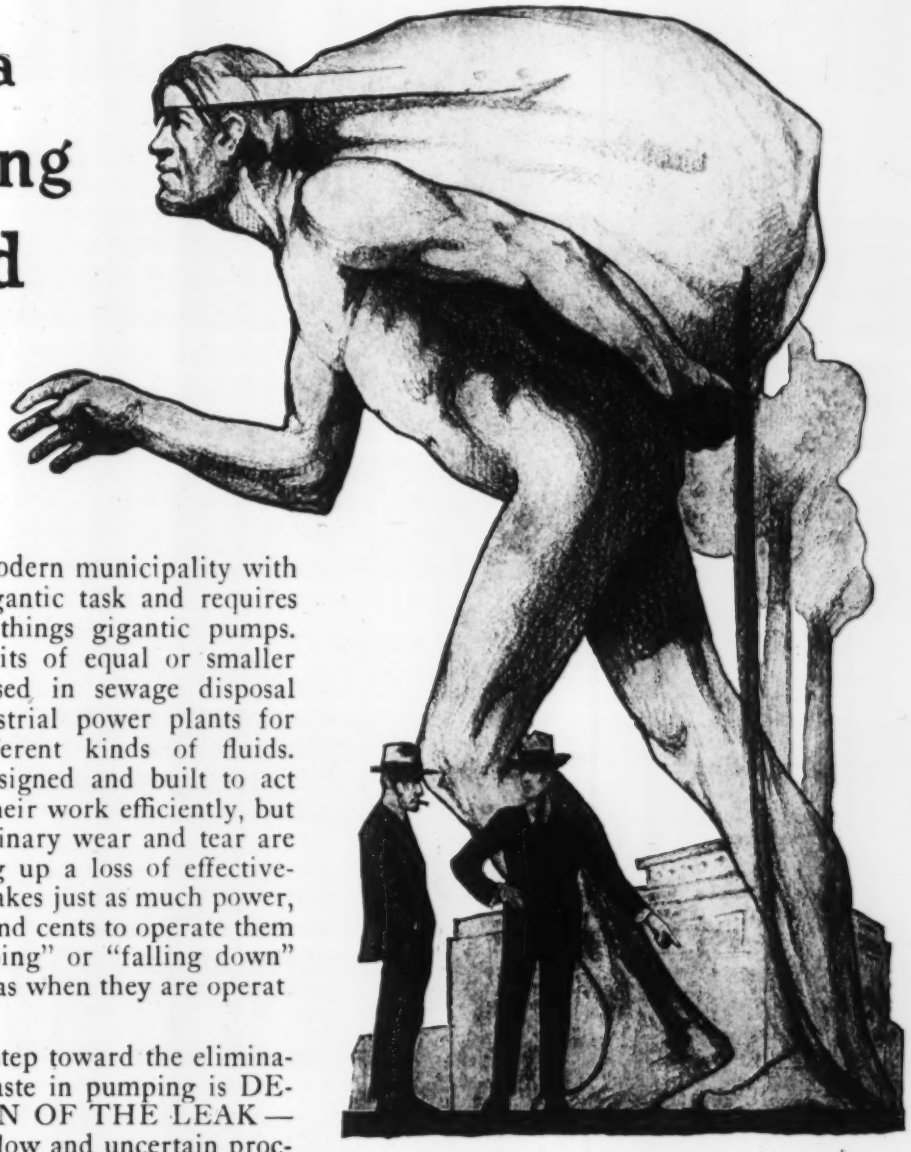

TO supply a modern municipality with water is a gigantic task and requires among other things gigantic pumps. Similar pumping units of equal or smaller capacity are also used in sewage disposal systems and in industrial power plants for pumping many different kinds of fluids. These pumps are designed and built to act smoothly and to do their work efficiently, but constant use, and ordinary wear and tear are continuously building up a loss of effectiveness—a leakage. It takes just as much power, just as many dollars and cents to operate them when they are "slipping" or "falling down" for any other reason, as when they are operating at rated capacity.

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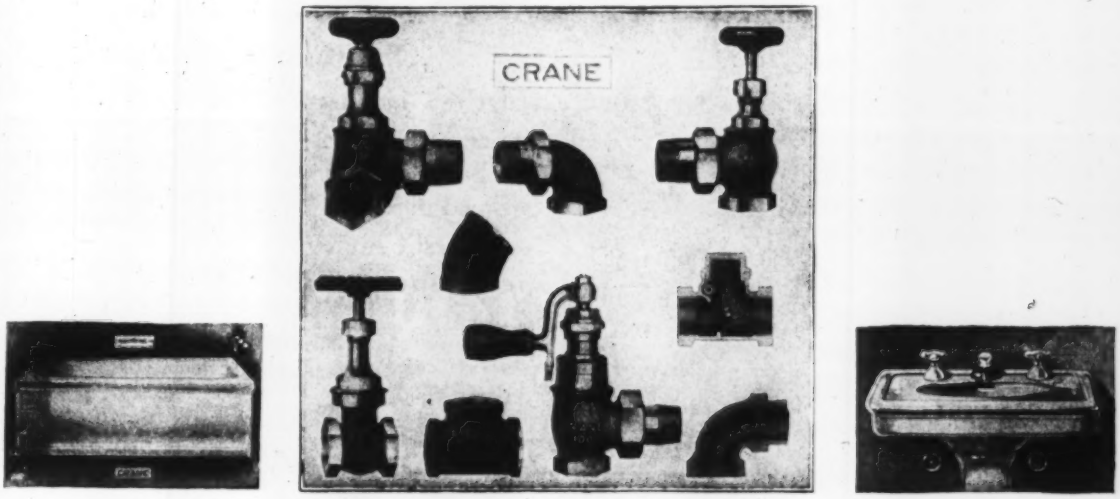

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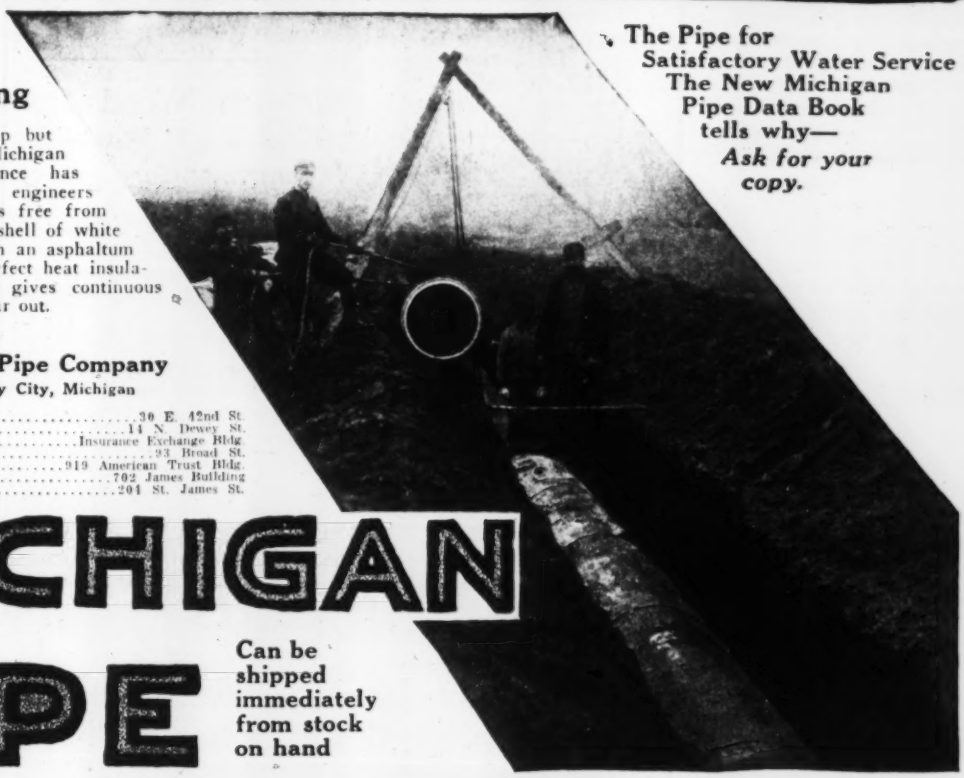

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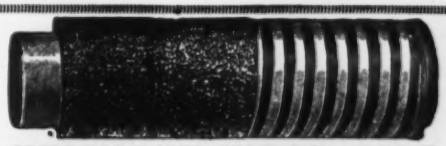

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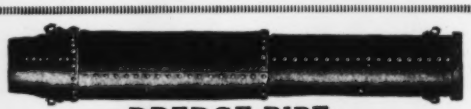

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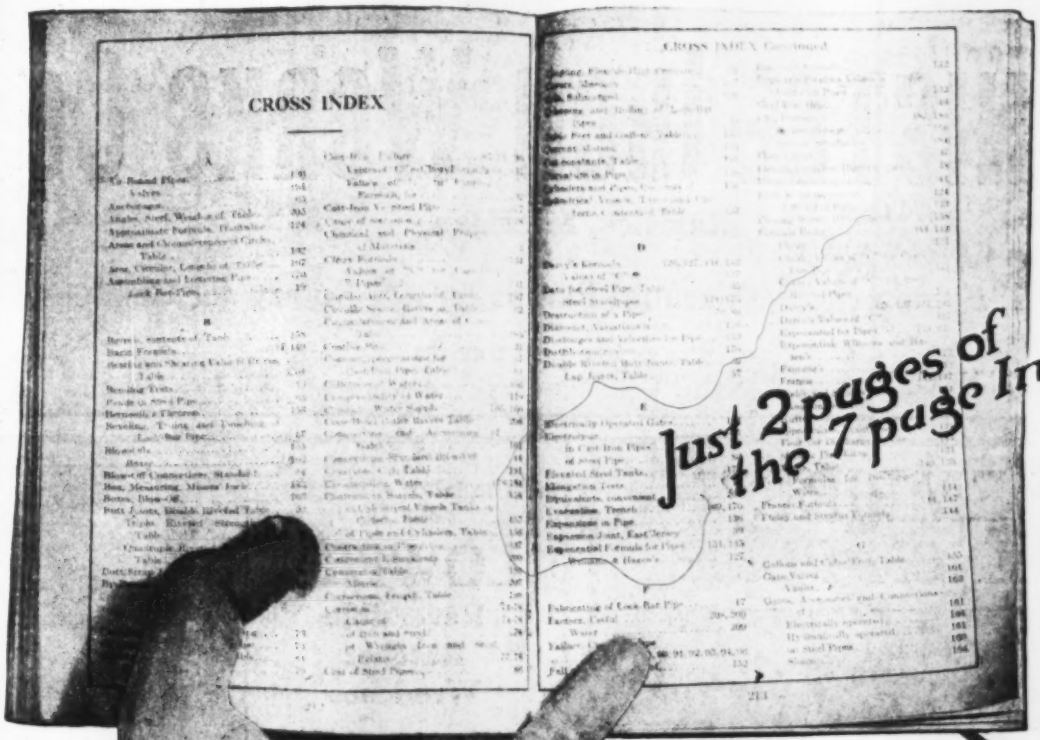

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Centrifugal Pumps **Vacuum Pumps** **Rotary Jet Condensers**

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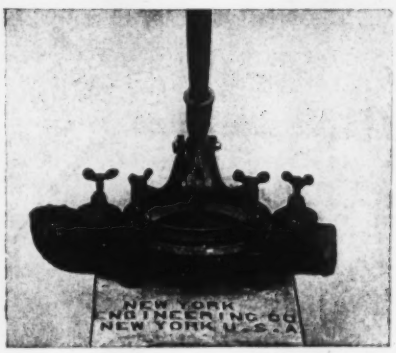

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Practically unbreakable—made of malleable iron.
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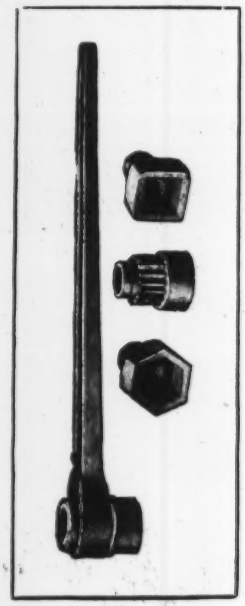
The labor situation calls for

LOWELL
Reversible Ratchet Wrenches



As the wage per hour mounts, the work done per hour has to mount — or should mount—in proportion. If it is a job that employs wrenches, the men will work at their highest efficiency if equipped with Lowell Reversible Ratchet Wrenches to fit the exact situation. An outfit of Lowells is a good outfit—pays well—speeds up work and reduces delays and accidents. Write for Catalog R.

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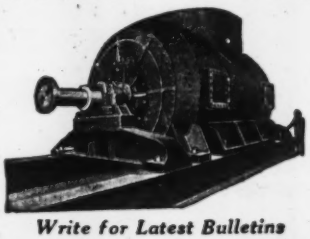

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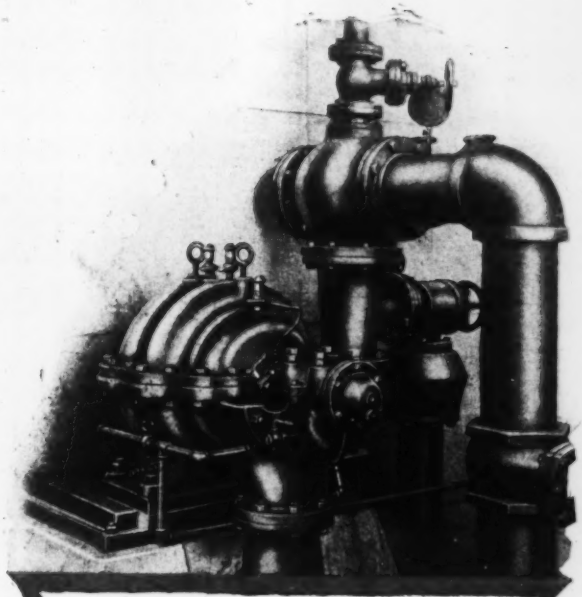
It's a FAVORITE
because there's no lost motion to this reversible ratchet wrench. It can't slip off the nut.

In 4 Years this GOULDS Fire Pump Has Never Been Out of Order, Packed or Cost One Cent for Repairs



This Goulds Centrifugal Fire Pump at the Fort Worth Cotton Oil Mill, Fort Worth, Texas, has been in active service four years—it's always ready for use and is tested every 24 hours. In all that time it has never been out of order—has never been packed—and has never cost one cent for repairs. The pump has a capacity of 750 G.P.M. against 120 pounds pressure or three good 1⅛ in. smooth nozzle fire streams. It is direct driven by a 75 hp. motor (the motor is on opposite side of the fire wall).

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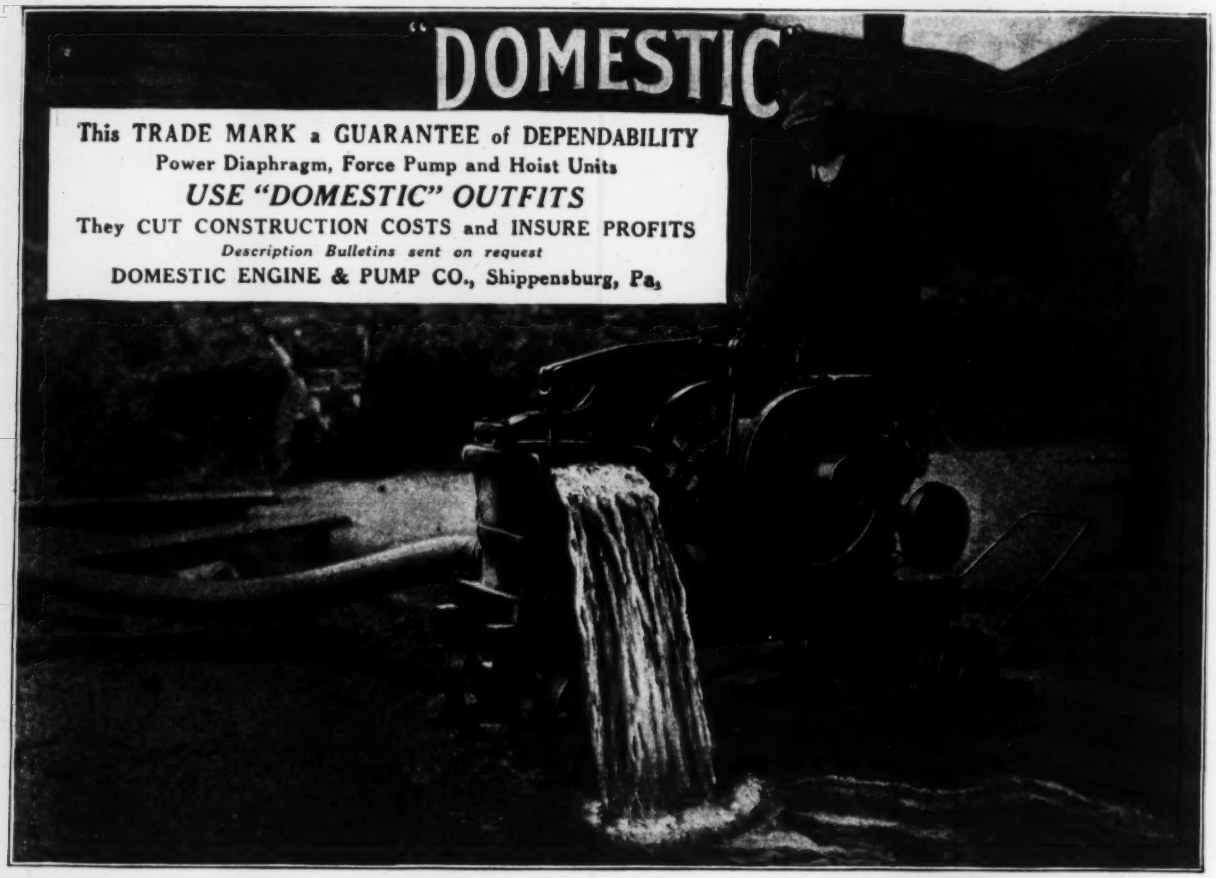
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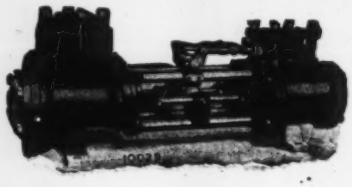

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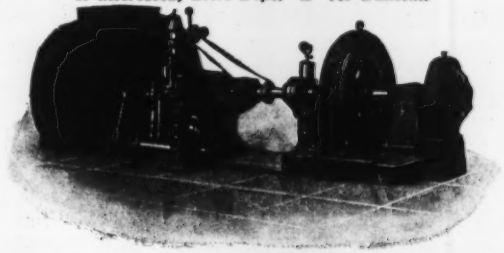

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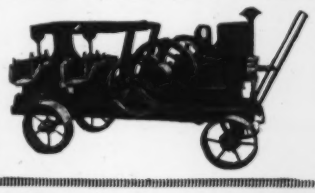

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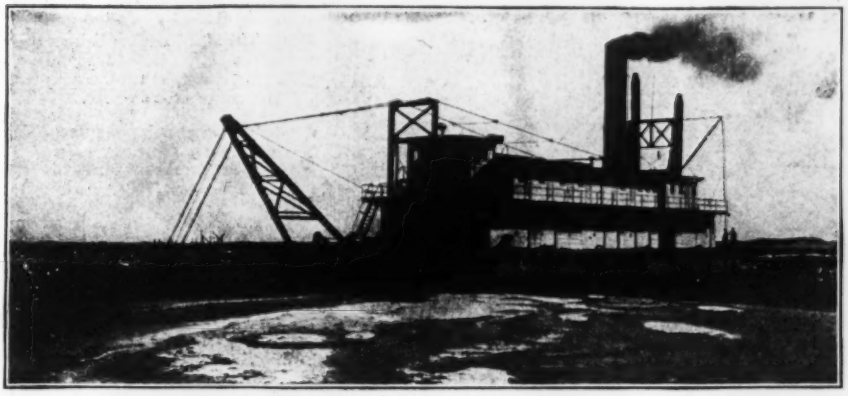

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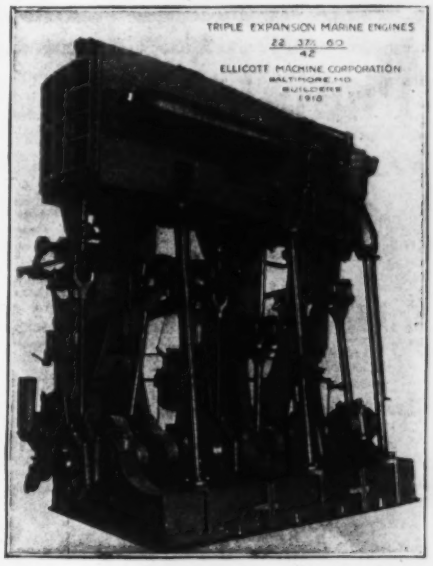

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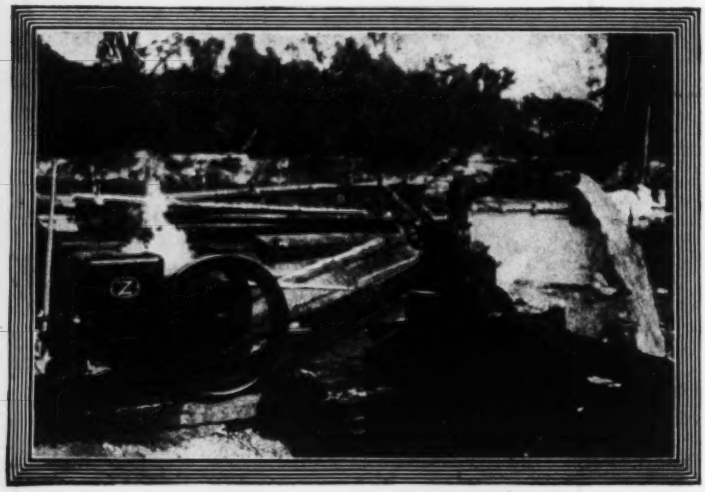

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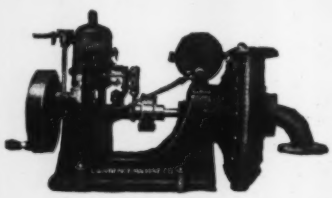

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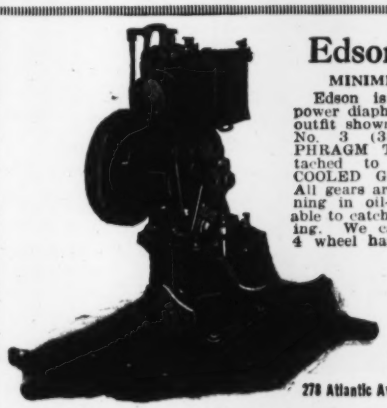

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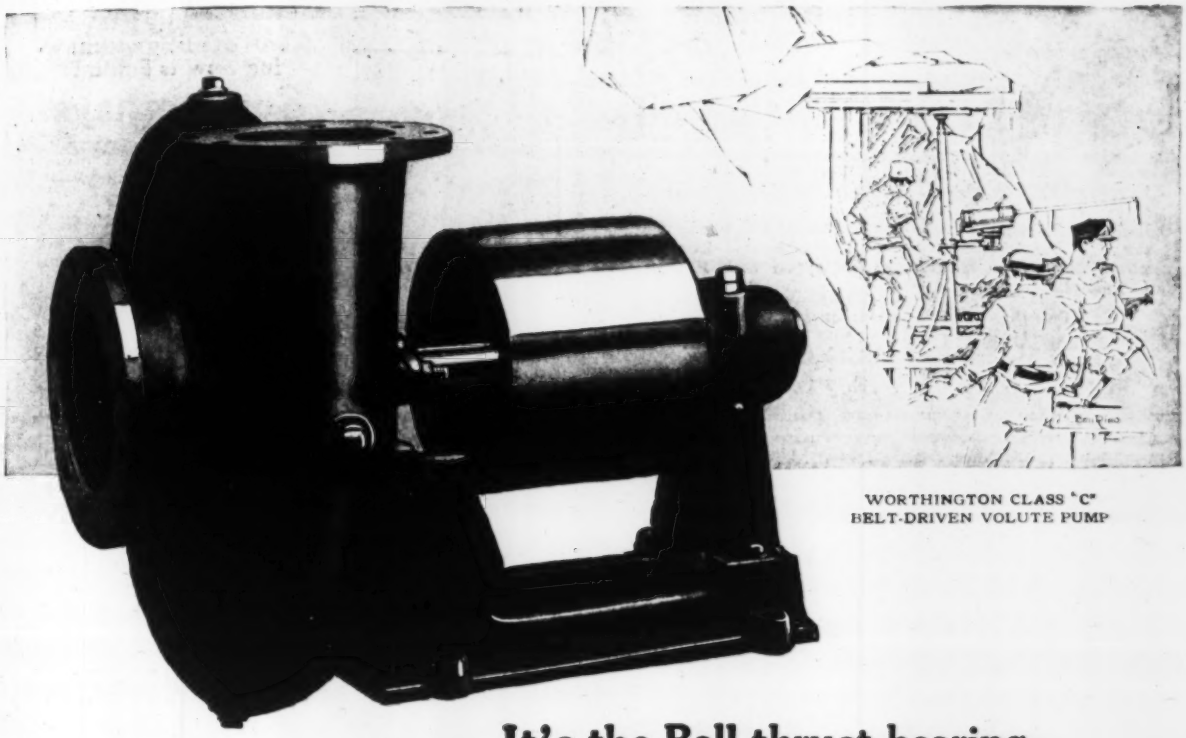

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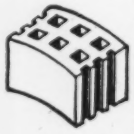

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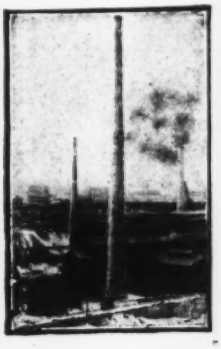

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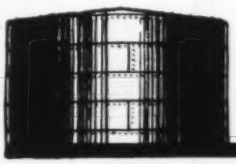

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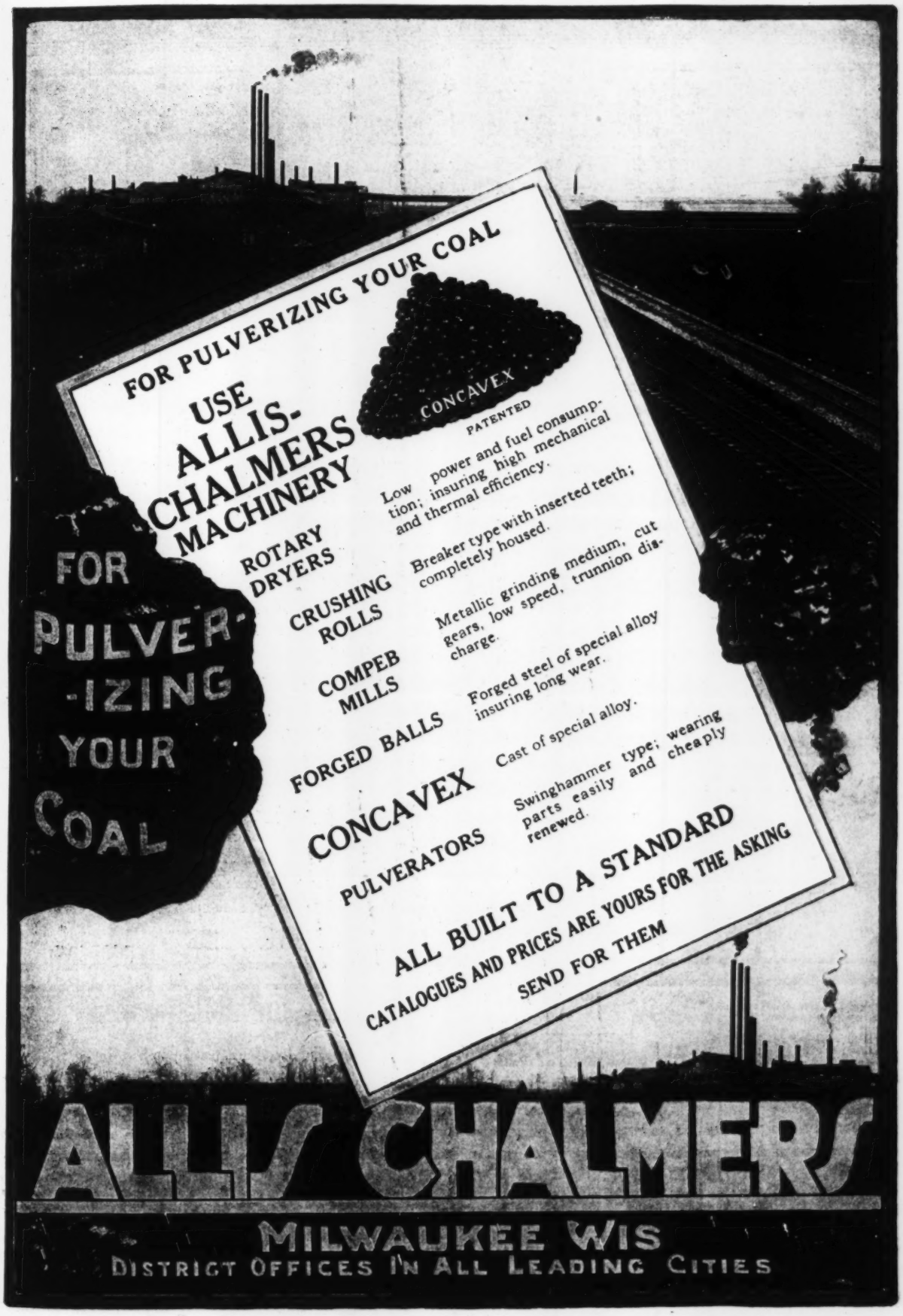
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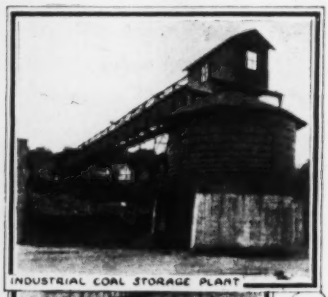

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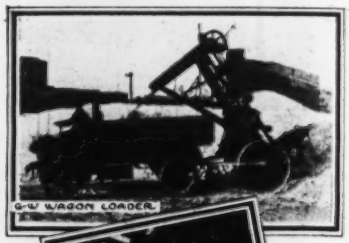

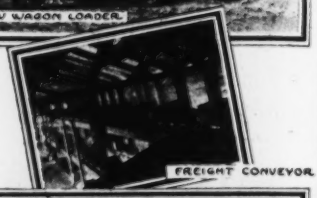

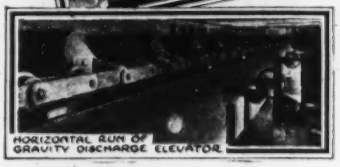

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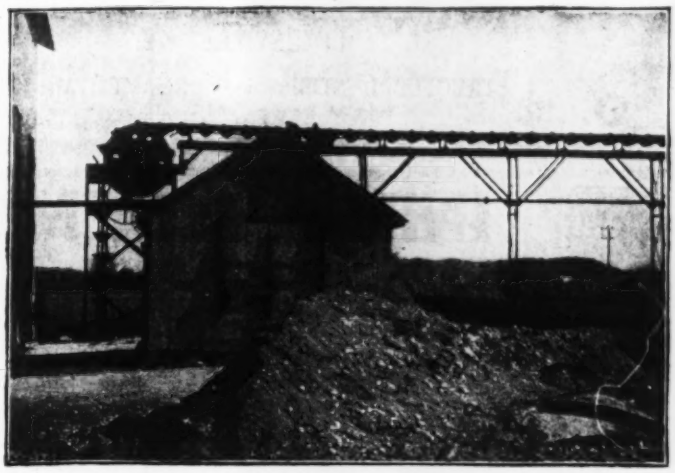

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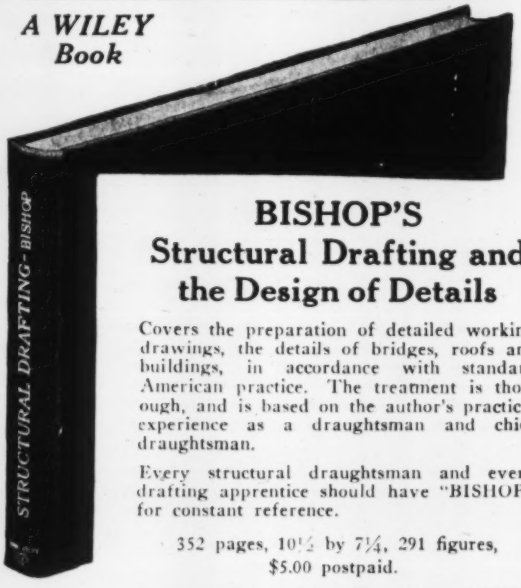

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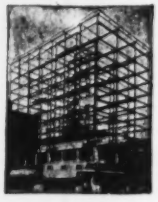

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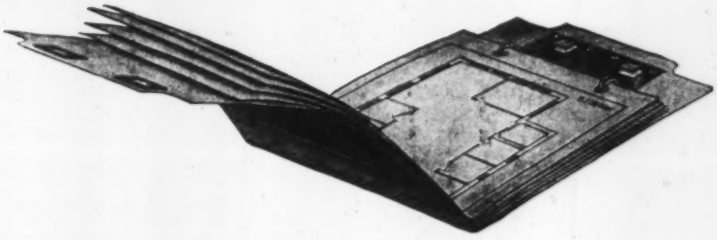

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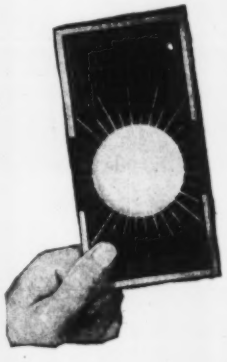

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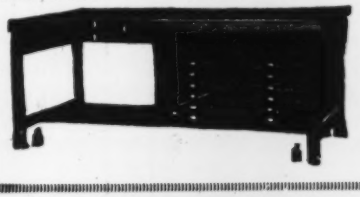

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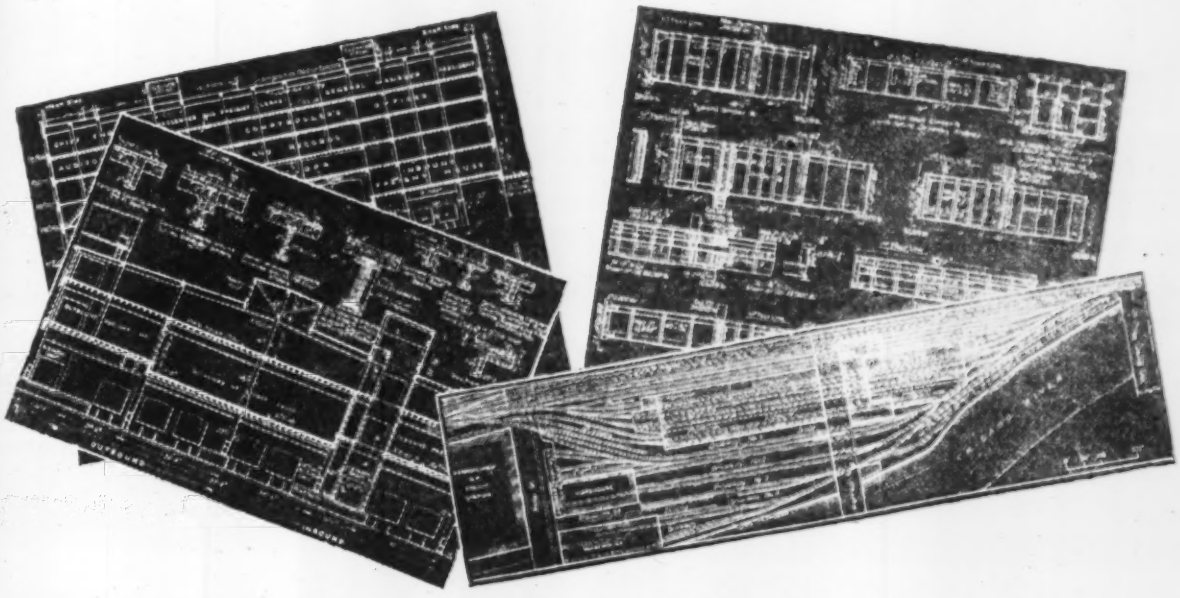

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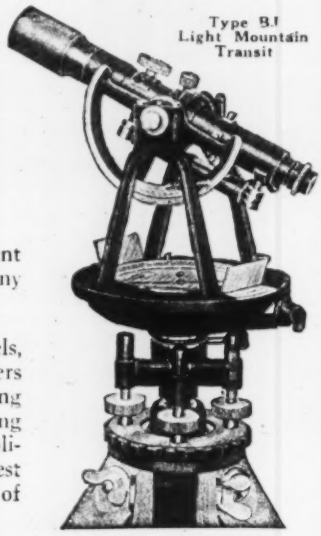

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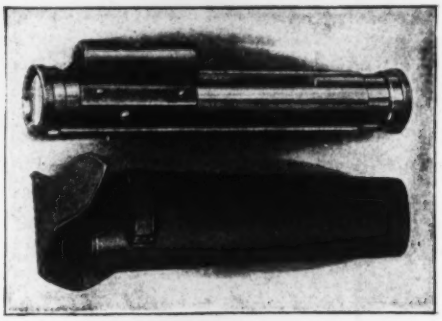

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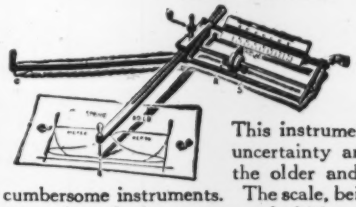

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10th Ave., at 36th St., N. Y.

Gentlemen:

Please send us rates and other data for advertising in your PROFESSIONAL DIRECTORY under the heading checked below:

☐ Consulting Engineers.
☐ Insp. and Test Engineers.
☐ Schools and Colleges.

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WHAT AND WHERE TO BUY

A Classified Index of Advertisers in this Issue

Equipment, Apparatus and Supplies Used in the Civil Engineering and Contracting Fields with Names of Manufacturers and Distributors

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Asbestos & Asbestos Products
Carey Co., Philip
Keasbey & Mattison Co.

Ash-Handling Machinery
Green Engineering Co.
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Portable Machy. Co.
Webster Manufacturing Co.

Asphalt
Asphalt Assn.
Carey Co., Philip

Asphalt Plants
Austin Mchy. Corp.

Backfillers
Austin Machy. Corp.
Pawling & Harnischfeger Co

Ball Mills
Worthington Pump & Machy. Corp.

Banks
Coal & Iron National Bank

Bar Benders and Cutters
Electric Welding Co.
Hinman & Co., D. A.
Ransome Concr. Mchy. Co.

Bar Chairs, Reinforcing
Barbour, R. W.
Concrete Steel Co.
Kalman Co., Inc., P. J.
Universal Form Clamp Co.

Barges, Steel
American Bridge Co.

Beam Wrapping
Mitchell-Tappen Co.

Belting
Link-Belt Company
Robins Conveying Belt Co.

Bins, Storage
Green Engineering Co.

Blast Furnaces and Fittings
Petroleum Iron Works Co.
Riter-Conley Co.

Blocks and Tackle
Boston & Lockport Block Co.

Blowers, Pressure
American Gas Furnace Co.

Blue Print Paper
Defiance Mfg. Co.

Boilers
Abendroth & Root Mfg. Co.
Babcock & Wilcox Co.
Leffel & Co., James
Orr & Sembower, Inc.
Traylor Engr. & Mfg. Co
Youngstown Boiler & Tank Co.

Boilers, Upright
Orr & Sembower, Inc.

Bolts, Nails, Nuts, Rivets & Spikes
Lackawanna Steel Co.

Books, Engineering and Technical
American Technical Society
McGraw-Hill Book Co.
Wiley & Sons Co., John

Boxes, Annealing
Blaw-Knox Co.
Petroleum Iron Works Co.

Brakes, Air
Westinghouse Traction Brake Co.

Brick, Fire
Robinson Clay Products Co.

Brick Making & Clay Working Machinery
Lancaster Iron Works, Inc.

Bridges
American Bridge Co.
Berlin Construction Co.
Bethlehem Steel Bridge Corp.
Blaw-Knox Co.
Boston Bridge Works
Champion Bridge Co.
Eastern Bridge & Struc. Co.
Fort Pitt Bridge Works
Foundation Co.
Independent Bridge Co.
Kellogg Structural Steel Co.
Kenwood Bridge Co.
King Bridge Co.
Lackawanna Bridge Co.
Louisville Bridge & Iron Co.
McClintic-Marshall Co.
Milwaukee Bridge Co.
Minneapolis Steel & Machy Co.
Missouri Valley Bridge & Iron Co.
Morava Construction Co.
Mount Vernon Bridge Co.
Parsons, Klapp, Brinckerhoff & Douglas
Penn. Bridge Co.
Phoenix Bridge Co.
Pittsburgh-Des Moines Steel Co.
Puget Sound Bridge & Dredging Co.
Raymond Concrete Pile Co.
Riverside Bridge Co.
Shoemaker-Satterthwait Bridge Co.
Strauss Bascule Bridge Co.
Virginia Bridge & Iron Co.
Wisconsin Bridge & Iron Co.

Bridges, Bascule
Strauss Bascule Bridge Co.

Bridge Operating Mchy.
Earle Gear & Machine Co.

Buckets, Automatic Dumping
Penn. Foundry & Mfg. Co.

Buckets, Clam Shell
Advance Engineering Co.
Blaw-Knox Co.
Brown Hoisting Mchy. Co.
Browning Co.
Haiss Mfg. Co., Inc., Geo.
Hayward Co.
Industrial Works
Kiesler Co., Jos. F.
Link-Belt Company
McMyler Interstate Co.
Mead-Morrison Mfg. Co.
Orton & Steinbrenner
Owen Bucket Co.
Vulcan Iron Works of N. J.
Williams Co., G. H.

Buckets, Concrete
Insley Manufacturing Co.
Ransome Concrete Mchy. Co.
Union Iron Works

Buckets, Dragline
Brown Hoisting Mchy. Co.
Hayward Co.
Monighan Machine Co.

Buckets, Dredging and Excavating
Blaw-Knox Co.
Haiss Mfg. Co., Inc., Geo.
Kiesler Co., Jos. F.
Marion Steam Shovel Co.
Mead Morrison Mfg. Co.
Union Iron Works

Buckets, Electric Motor
Hayward Co.

Buckets Elevator
(See Elevators, Bucket)

Buckets, Orange Peel
Browning Co.
Haiss Mfg. Co., Inc., Geo.
Hayward Co.
Industrial Works
Kiesler Co., Jos. F.
McMyler Interstate Co.
Mead Morrison Mfg. Co.
Orton & Steinbrenner Co.
Owen Bucket Co.
Vulcan Iron Works of N. J.

Buckets, Trench and Excavating
Osgood Co.

Building Paper
Carey Co., Philip

Buildings, Ramp
Ramp Building's Corp.

Buildings, Steel
Blaw-Knox Co.
Hydraulic Steelcraft Co.
McClintic-Marshall Co.
Milliken Bros. Mfg. Co.
Truscon Steel Co.

Bunks and Cots
Fort Pitt Bedding Co.
Southern-Rome Co.

Cableways
Flory Manufacturing Co., S.
Lambert Hoisting Engine Co.
Lidgerwood Mfg. Co.
Roebling's Sons Co., J. A.
Waterbury Co.
Wickwire-Spencer Steel Corp.

Cableway Excavators
(See Excavators, Cableway)

Caissons
American Bridge Co.
Foundation Co.
Lackawanna Steel Co.

Cars, Concrete
Ransome Concrete Mchy. Co.

Cars, Industrial V Dump
Easton Car & Constr. Co.
Insley Mfg. Co.
Penn Fdry. & Mfg. Co.
Ramapo Iron Works
Whiting Corporation.

Carts, Air Side Dump
Continental Car Co. of Amer.

Carts, Concrete
Gray Iron Fdry. Co.
Insley Mfg. Co.
Ransome Concr. Mchy. Co.
Sterling Wheelbarrow Co.

Castings, Iron and Steel
American Bridge Co.
Amer. Cast Iron Pipe Co.
Chain Belt Co.
Fox & Co., John
Gray Iron Fdry. Co.
Jeffrey Manufacturing Co.
Link-Belt Co.
Lynchburg Foundry Co.
Marion Malleable Iron Wks.
Marion Steam Shovel Co.
U. S. Cast Iron Pipe & Foundry Co.
Warren Foundry & Mach. Co.

Castings, Street and Sewer
Lynchburg Foundry Co.
U. S. Cast Iron Pipe & Foundry Co.

Cement
Alpha Portland Cement Co.
Lawrence Cement Co.
Pennsylvania Cement Co.
Vulcanite Portland Cement Co.

Cement-Guns
Cement-Gun Co.

Cement Gun Contracting
Traylor-Dewey Contracting Co.

Cement-Making Machinery
Allis-Chalmers Mfg. Co.
Austin Mchy. Corp.
Century Cement Mach. Co.
Gruendler Patent Crusher & Pulverizer Co.
Smidth & Co., F. L.
Traylor Engr. & Mfg. Co.
Vulcan Iron Wks. of Wilkes-Barre
Worthington Pump & Machy Corp.

Centers, Steel, Collapsible
Blaw-Knox Co.
Hydraulic Steelcraft Co.

Chain, Steel and Malleable Sprocket
Chain Belt Co.
Jeffrey Manufacturing Co.
Link-Belt Company
Webster Manufacturing Co.

Channelers
Ingersoll-Rand Co.

Chimneys, Concrete
Acme Chimney Co.
General Concrete Constr. Co.
Heine Chimney Co.
Rust Engineering Co.
Summerhays & Sons Co., Wm.
Weber Chimney Co.
Wiederholdt Construction Co.

Chimneys, Radial Brick
Acme Chimney Co.
American Chimney Corp.
Custodis Chimney Construction Co., Alphons
Heine Chimney Co.
Kellogg Co., M. W.
Rust Engineering Co.
Summerhays & Sons Co., Wm.
Wiederholdt Construction Co.

Chimneys, Steel
Blaw-Knox Co.
Chicago Bridge & Iron Wks.
Petroleum Iron Works Co.

Chloride of Lime
Penn Salt Mfg. Co.

Chlorinators
Wallace & Tiernan Co.

Chlorine, Liquid
Mathieson Alkali Works
Wallace & Tiernan Co.

Chutes, Concrete
Insley Manufacturing Co.
Ransome Concrete Mchy. Co.

Clutches, Friction
Webster Manufacturing Co.

Coal and Ore-Conveying Machinery
Brown Hoisting Machy. Co.
Byers Mach. Co., John F.
Chain Belt Co.
Gifford-Wood Co.
Haiss Mfg. Co., Inc., Geo.
Jeffrey Mfg. Co.
Lidgerwood Mfg. Co.
Link-Belt Company
McMyler Interstate Co.
Mead Morrison Mfg. Co.
Portable Machinery Co.
Webster Manufacturing Co.

Coal-Storage Systems
Green Engineering Co.
Guarantee Construction Co.
Jeffrey Manufacturing Co.
Link-Belt Company

Cofferdams, Steel
Lackawanna Steel Co.

Column Clamps
M & M Form Clamp Co.
Universal Form Clamp Co.

Column Forms
Blaw-Knox Co.
Hydraulic Steelcraft Co.

Compressors, Air, Heavy Duty
Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
Ingersoll-Rand Co.
McKiernan-Terry Drill Co.
Sullivan Machinery Co.
Westinghouse Traction Brake Co.
Worthington Pump & Machy Corp.

Compressors, Air, Portable
Cement-Gun Co.
General Electric Co.
Ingersoll-Rand Co.
Schramm & Son., Inc., Chris. D.
Traylor Engr. & Mfg. Co.

Concrete Bond
Living-Stone Co., The

Concrete Floor Hardener
Anti-Hydro Waterproofing Co.
Sonneborn Sons, Inc., L.
Toch Bros.

Concrete Making Machinery
Austin Machy. Corp.
Century Cement Mach. Co.
Pneumatic Concrete Machy. Co.
Ransome Concrete Machy. Co.

Concrete Reinforcement
American Steel & Wire Co.
Brown Hoisting Machy. Co
Carnegie Steel Co.
Concrete Steel Co.
Consolidated Expanded Metal Co.
Electric Welding Co.
Hydraulic Steelcraft Co.
Kalman Co., Inc., P. J.
Lackawanna Steel Co.
Laclede Steel Co.
Mitchel-Tappen Co.
Northwestern Expanded Metal Co.
Truscon Steel Co.
U. S. Gypsum Co.
Wickwire-Spencer Steel Corp

Condensers
Cameron Steam Pump Wks., A. S.
Dean Bros. Steam Pump Works
Ingersoll-Rand Co.
Manistee Iron Wks.
Worthington Pump & Machy. Corp.

Conveyors, Belt
Chain Belt Co.
Gifford-Wood Co.
Haiss Mfg. Co., Inc., Geo.
Jeffrey Manufacturing Co.
Link-Belt Company
Portable Machinery Co.
Robins Conveying Belt Co.
Webster Manufacturing Co.

Conveyors, Bucket
Chain Belt Co.
Gifford-Wood Co.
Haiss Mfg. Co., Inc., Geo.
Jeffrey Manufacturing Co.
Link-Belt Company
Mead-Morrison Mfg. Co.
Webster Manufacturing Co.

Cordage, Manila & Sisal
Plymouth Cordage Co.
Whitlock Cordage Co.

Corner Bead Metal
Consolidated Expanded Metal Co.
Truscon Steel Co.

Couplings, Flexible
Dexter Co., I. H.

Cranes, Locomotive
Ball Engine Co.
Brown Hoisting Machy. Co.
Browning Co.
Byers Mach. Co., John F.
Davenport Locomotive Wks.
Industrial Works
Link-Belt Company
Locomotive Crane Co. of America
McMyler Interstate Co.
Marion Steam Shovel Co.
Ohio Locomotive Crane Co.
Orton & Steinbrenner Co.
Osgood Co.
Terry Mfg. Co.

Cranes, Traveling
Brown Hoisting Machy. Co.
Link-Belt Company
Pawling & Harnischfeger Co.
Whiting Corporation.

Cranes, Wrecking
Browning Co.
Bucyrus Co.
Industrial Works

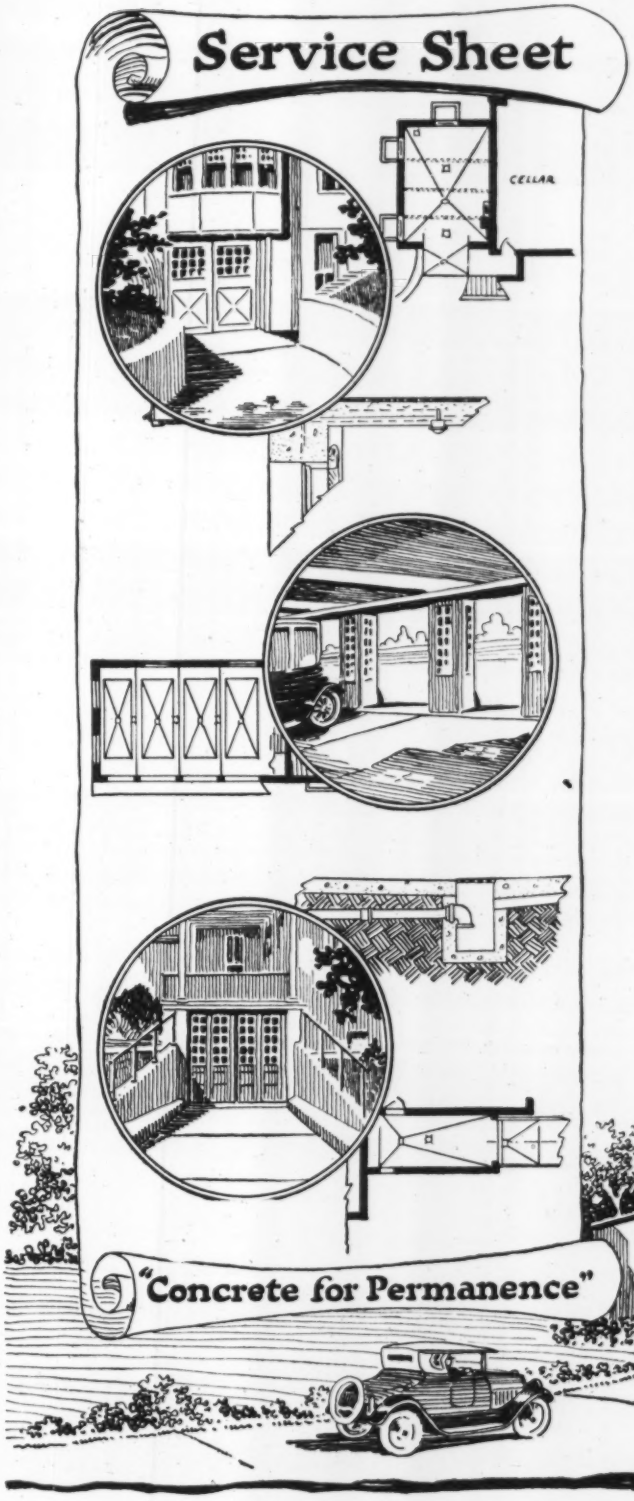
Creosoted Blocks, Timber, etc.
American Creosoting Co.
Jennison-Wright Co.
Ohio Wood Preserving Co.
Republic Creosoting Co.
S. P. F. Wood Preserving Co.

Creosoting
American Creosote Works
Barret Co.
Jennison-Wright & Co.
Republic Creosoting Co.
Wyckoff Pipe & Creosoting Co.

Creosoting Oils
Barrett Co.
Northeastern Co.
Protexol Corp.
Republic Creosoting Co.

Crushers and Pulverizers
Allis-Chalmers Mfg. Co.
Chalmers & Williams, Inc

Concrete Garages Built With House



There are a number of good reasons for making a garage part of the dwelling: convenience, saving in construction, in lighting and heating, etc.

We recently secured a number of interesting photographs and sketches showing a variety of ways in which a garage has been attached to dwellings, new and old. These suggestions appear in one of our latest Service Sheets bearing the above title.

In addition, we have other Service Sheets or Special Bulletins giving practical hints on the following concrete constructions:

Workingmen's Homes
Walkways and Driveways
Concrete Roads
Bridges and Culverts
Foundation and Hatchway
Gutter and Curb
Storage Cellar
Small Warehouses
Spring House
Small Dam
Milk House
Ice House
Manure Pit
Septic Tank
Oil Storage Tank
Tennis Court
Inclosure Walls
Barn and Silo
Corn Crib
Storage House
Smoke House
Hog House
Poultry House
Dipping Vat
Tanks and Troughs
Piers for Small Boats
Garden Furniture
Greenhouse
Coal Pocket
Posts and Walls
Walls, Sills and Lintels
Garages and Runways
Overcoating of Old Dwellings
Porch, Cellar and Stable Floors
Cold-weather Concreting

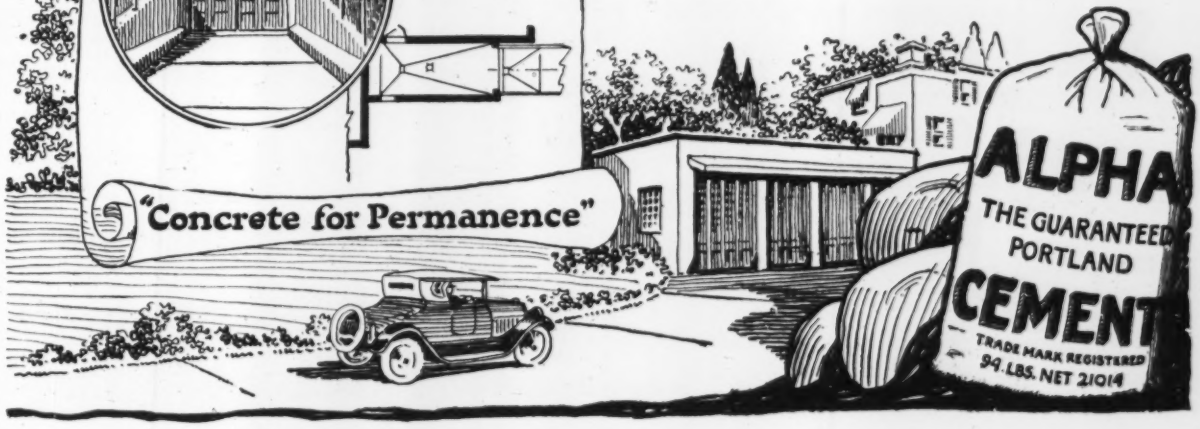
Ask for the Sheet or Bulletin that interests you most, also for a copy of the Alpha 96-page Handbook on concrete construction if you don't already own a copy. This Handbook is not forwarded unless specifically asked for. All sent free of cost or obligation if you live east of the Mississippi. We are obliged to ask inquirers out of our sales territory to send fifty cents to cover printing and postage expense. Refer to *Engineering News-Record*.

Alpha Portland Cement Co.

General Offices: EASTON, PA.

Branch Offices:

New York **Boston** **Philadelphia**
Pittsburgh **Baltimore** **Savannah**



Grundler Patent Crusher & Pulverizer Co.
Jeffrey Manufacturing Co.
Orton & Steinbrenner Co.
Raymond Bros. Impact Pulverizer Co.
Smidth & Co., F. L.
Traylor Engr. & Mfg. Co.
Worthington Pump & Machy. Corp.

Culverts, Corrugated
Canton Culvert & Silo Co.
Newport Culvert Co.

Culverts, Metal
Amer. Sheet & Tin Plate Co.
Newport Culvert Co., Inc.
U. S. Cast Iron Pipe & Foundry Co.

Culverts, Nestable & Riveted Corrugated
Canton Culvert & Silo Co.
Newport Culvert Co.

Curbs, Steel Protected
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Truscon Steel Co.

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Milburn Co., Alex.

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Puget Sound Bridge & Dredging Co.

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McMyler Interstate Co.
Terry Mfg. Co.

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Mathieson Alkali Works
Wallace & Tiernan Co.

Distributors, Pressure Oil
(See Road Oilers, Pressure)

Ditching Machinery
(See Excavators.)

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Economy Drawing Table & Manufacturing Co.
Hamilton Manufacturing Co.

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Dietzgen Co., Eugene
Hamilton Manufacturing Co.
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Kolesch & Co.
National Tracing Cloth Co.

Drawing Tables
(See Tables and Boards, Drawing.)

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Ludgerwood Mfg. Co.
Marion Steam Shovel Co.
Osgood Co.
Vulcan Iron Wks. of N. J.

Dredges, Dipper
Austin Machy. Corp.
Bay City Dredge Works
Bucyrus Co.
Osgood Co.

Dredges, Hydraulic
Atlantic Gulf & Pacific Co.
Bucyrus Co.
Ellicott Machine Corporation
Marion Steam Shovel Co.
Morris Machine Works

Drills, Air
Ingersoll-Rand Co.

Drills, Core
Ingersoll-Rand Co.
Keystone Driller Co.
McKiernan-Terry Drill Co.
Sullivan Machinery Co.

Drills, Hammer
Ingersoll-Rand Co.
McKiernan-Terry Drill Co.
Sullivan Machinery Co.

Drills, Rock
General Electric Co.
Ingersoll-Rand Co.
Jeffrey Manufacturing Co.
McKiernan-Terry Drill Co.
Schramm & Son., Inc., Chris. D.
Sullivan Machinery Co.

Drums, Holding
Blaw Knox Co.
Haiss Mfg. Co., Inc., Geo.
Hayward Co.
Monighan Machine Co.

Dryers
Worthington Pump & Machy. Corp.

Ejectors, Sewage
Pacific Flush Tank Co.

Elevator, Buckets
Chain Belt Co.
Gifford-Wood Co.
Haiss Mfg. Co., Inc., Geo.
Hendrick Mfg. Co.
Jeffrey Manufacturing Co.
Link-Belt Company
Ohio Locomotive Crane Co.
Webster Manufacturing Co.

Elevators; Contractors' Material
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Haiss Mfg. Co., Inc., Geo.
Insley Manufacturing Co.
Ransome Concrete Mchy. Co.

Elevators, Factory
Ridgway & Son Co., Craig

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Atlantic Gulf & Pacific Co.
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General Machy. Foundations Co.
Guarantee Construction Co.
Parsons, Klapp, Brinckerhoff & Douglas
Puget Sound Bridge & Dredging Co.
Raymond Concrete Pile Co.
Smith, Hauser & McIsaac
Spencer, White & Prentis
Stone & Webster
Terry & Tench Co., Inc.
(See also Directory of Engineers.)

Engineers' and Draftsmen's Instruments and Supplies
Defiance Mfg. Co.
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Gurley, W. & L. E.
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Kolesch & Co.
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Lufkin Rule Co.
National Tracing Cloth Co.

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Fairbanks-Morse & Co. of Chicago
Ingersoll-Rand Co.
Worthington Pump & Machy. Corp.

Engines, High Duty Water-Works
Morris Machine Works
Worthington Pump & Machy. Corp.

Engines, Hoisting
(See Hoists)

Engines, Portable
Leffel & Co., James
Worthington Pump & Machy. Corp.

Engines, Steam
Lawrence Machine Co.

Excavating Machinery
Byers Mach. Co., John F.

Excavators, Cableway
Lambert Hoisting Engine Co.
Ludgerwood Mfg. Co.
Sauerman Bros.

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Austin Mchy. Corp.
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Bucyrus Co.
Byers Mach. Co., John F.
Fritz & Co., Inc., W. G.
Keystone Driller Co.
Marion Steam Shovel Co.
Osgood Co.
Pawling & Harnischfeger Co.

Excavators, Dragline
Austin Mchy. Corp.
Bucyrus Co.
Byers Mach. Co., John F.
Hayward Co.
Lambert Hoisting Engine Co.
Marion Steam Shovel Co.
Monighan Machine Co.
Osgood Co.
Pawling & Harnischfeger Co.
Sauerman Bros.

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Northwestern Expanded Metal Co.
Truscon Steel Co.

Filters, Water, Municipal and Industrial
American Water Softener Co.
International Filter Co.
N. Y. Continental Jewell Filtration Co.
Norwood Engineering Co.
Permutit Co.
Pittsburgh Filter Mfg. Co.
Roberts Filter Mfg. Co.
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Robinson Clay Products Co.

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Keasbey & Mattison Co.

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(See Concrete Floor Hardener.)

Floor, Wood Block
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Republic Creosoting Co.

Flumes, Iron & Steel
Hardesty Mfg. Co., R.
Petroleum Iron Wks.

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Carnegie Steel Co.

Form Clamps
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M. & M. Form Clamp Co.
Universal Form Clamp Co.

Form Tighteners
Marion Malleable Iron Works

Forms, Culvert, Road, Sewer, Tunnel, etc.
Blaw-Knox Co.
Foote Concrete Machy. Co.
Hydraulic Steelcraft Co.

Forms for Curbs and Gutters
Blaw-Knox Co.

Forms for Walls, Building Construction, etc.
Blaw-Knox Co.
Hydraulic Steelcraft Co.

Foundations
American Bridge Co.
Foundation Co.
General Machinery Foundations Co.
Lackawanna Steel Co.
MacArthur Concrete Pile & Foundation Co.
Raymond Concrete Pile Co.
Smith, Hauser & MacIsaac
Spencer, White & Prentis
Underpinning & Foundation Co.

Foundry Equipment
Whiting Corporation.

Frogs and Switches, Railway
Ramapo Iron Works

Furnaces, Annealing & Tempering
American Gas Furnace Co.

Furnaces, Gas
American Gas Furnace Co.

Garage Designs
Ramp Buildings Corp.

Garbage Disposal Apparatus
Jeffrey Mfg. Co., The

Gates, Head
Hardesty Mfg. Co.

Gates, Sluice
Coffin Valve Co.
Coldwell-Wilcox Co.
Crane Co.
Hardesty Mfg. Co.
Ludlow Valve Mfg. Co.

Gates, Water
Hardesty Mfg. Co.

Gauges, Loss of Head
Simplex Valve & Meter Co.

Gauges, Rate of Flow
Simplex Valve & Meter Co.

Gears
Earl Gear & Mach. Co.

Generators, Electric
Allis Chalmers Mfg. Co.
Fairbanks-Morse & Co. of Chicago
General Electric Co.

Glass Construction
Detroit Steel Products Co.
Penn Wire Glass Co.

Glass, Fireproof
(See Wire Glass)

Governors, Waterwheel
Woodward Governor Co.

Grates, Chain
Green Engineering Co.

Gravel Washing Plants
Link-Belt Company
Sauerman Bros.

Gypsum
U. S. Gypsum Co.

Hammers, Pneumatic
Ingersoll-Rand Co.

Hammers, Steam Pile
(See Pile Hammers, Steam)

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Lakewood Engrg. Co.
Lambert Hoisting Eng. Co.
Ransome Concrete Mchy. Co.

Hoists, Contractors' Electric
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Dobbie Foundry & Mach. Co.
Flory Mfg. Co., S.
Ingersoll-Rand Co.
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Ludgerwood Mfg. Co.
Mead-Morrison Mfg. Co.
Minn. Steel & Machy. Co.
Monighan Machine Co.
Mundy Hoisting Eng. Co., J. S.
O. K. Clutch & Mchy. Co.
Orr & Sembower, Inc.
Stroudsburg Engine Works

Hoists, Contractors', Gasoline
Gray Iron Fdry. Co.
Lambert Hoisting Eng. Co.
Ludgerwood Mfg. Co.
Mundy Hoisting Eng. Co., J. S.
O. K. Clutch & Mchy. Co.
Schramm & Son, Inc., Chris. D.
Stroudsburg Engine Works

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Allis-Chalmers Mfg. Co.
Byers Mach. Co., John F.
Flory Manufacturing Co., S.
Ingersoll-Rand Co.
Lambert Hoisting Eng. Co.
Lansing Co.
Ludgerwood Mfg. Co.
Mead-Morrison Mfg. Co.
Mundy Hoisting Eng Co., J. S.
Orr & Sembower, Inc.
Stroudsburg Engine Works
Vulcan Iron Wks. of Wilkes-Barre, Pa.

Hoists, Pneumatic
Ingersoll-Rand Co.
Stroudsburg Engine Works
Whiting Corporation

Hoppers, Concrete
Insley Manufacturing Co.
Ransome Concrete Machy. Co.

Hydrants
Ludlow Valve Mfg. Co.
Norwood Engineering Co.
Rensselaer Valve Co.
Smith Mfg. Co., A. P.
Wood & Co., R. D.

Incinerators
Power Specialty Co.

Inserts, Concrete
Security Insert Co.
Truscon Steel Co.

Inspecting Laboratories
(See Directory of Engineers)

Instruments, Drawing
Keuffel & Esser Co.

Instruments, Surveying
Ainsworth & Sons, Wm.
Berger & Sons, C. L.
Buff & Buff Mfg. Co.
Gurley, W. & L. E.
Keuffel & Esser Co.
Kolesch & Co.

Iron Work, Structural and Ornamental
Christopher & Simpson Iron Works
Hendrick Mfg. Co.
Ryerson & Son Co., Jos.
Snead Architectural Iron Works

Jacks, Lifting
McKiernan-Terry Drill Co.
Norton, Inc., A. O.

Joints, Expansion Paving
Barrett Co.
Carey Co., Philip
Truscon Steel Co.

Joints, Filler Paving
Barrett Co.

Joints, Flexible Pipe
Crane Co.
U. S. Cast Iron Pipe & Foundry Co.

Kilns, Lime
Petroleum Iron Works Co.

Lamps Arc & Incandescent
General Electric Co.

Lamps, Flood
General Electric

Lath, Expanded Metal
Consolidated Expanded Metal Co.
Hydraulic Steelcraft Co
Mitchell-Tappen Co.
Northwestern Expanded Metal Co.

Leadite
Leadite Co., Inc., The

Lights, Contractors'
Milburn Co., Alex.

Loaders, Wagon
(See Wagon Loaders)

Locomotives, Compressed Air
Vulcan Iron Wks. of Wilkes-Barre, Pa.

Locomotives, Electric
General Electric Co.
Jeffrey Mfg. Co., The

Locomotives, Gasoline
Burton Engr. & Machy. Co.
Fate-Root-Heath Co.
Hadfield Penfield Steel Co.
Vulcan Iron Wks. of Wilkes-Barre, Pa.
Whitcomb Co., Geo. D.

Locomotives, Steam
Davenport Locomotive Wks.
Vulcan Iron Wks. of Wilkes-Barre, Pa.

Locomotives, Storage Battery
General Electric Co.
Whitcomb Co., Geo. D.

Loose Leaf Data
Lefax Co.

Lubricants
Greene, Tweed & Co.

Lumber
Weyerhaeuser Forest Products

Manila Drilling Cables
Plymouth Cordage Co.
Whitlock Cordage Co.

Manometers
Simplex Valve & Meter Co.

Meter Boxes
Pittsburgh Meter Co.

Meter Provers
Hersey Mfg. Co.
Pittsburgh Meter Co.

Meters, Boiler Feed Water
Builders' Iron Foundry Co.

Meters, Current
Gurley, W. & L. E.

Meters, Gas and Steam
Builders' Iron Foundry Co.
General Electric Co.
Wallace & Tiernan Co.

Meters, Venturi
Builders' Iron Foundry Co.

Meters, Water, Oil, etc.
Builders' Iron Foundry Co.
Gamon Meter Co.
General Electric Co.
Hersey Mfg. Co.
Neptune Meter Co.
Pittsburgh Meter Co.
Simplex Valve & Meter Co.
Thompson Meter Co.
Worthington Pump & Machy. Corp.

Mixers, Asphalt
(See Mixers, Hot)

Mixers, Concrete
Austin Mchy. Corp.
Blaw-Knox Co.
Cement-Gun Co.
Chain Belt Co.
Foote Concrete Machy. Co.
Gray Iron Foundry Co.
Jaeger Machine Co.
Lansing Co.
Ransome Concrete Mchy. Co.
Schramm and Son, Inc., Chris. D.
Traylor Engr. & Mfg. Co.
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Mixers, Grout
Austin Mchy. Corp.
Ransome Concrete Mchy. Co.
Union Iron Works

Mixers, Hot
Austin Mchy. Corp.

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British Distributors: Anglo-American Agency, Royal Liver Building, Liverpool, England.

Patented May 13, 1913—May 6, 1919

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Austin Mchy. Corp
Jaeger Machine Co.
Lansing Co.
Ransome Concrete Mchy. Co.

Mixers, Paving
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Chain Belt Co.
Foote Concrete Machy. Co.
Ransome Concrete Machy. Co.

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Ransome Concrete Mchy. Co.

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Fairbanks-Morse & Co. of Chicago
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Westinghouse Traction Brake Co.

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(See Trucks, Motor)

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McMyler Interstate Co.
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Vulcan Iron Works of Chicago

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McKiernan-Terry Drill Co.
Union Iron Works

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Janney-Steinmetz Co.

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Raymond Concrete Pile Co.

Piles, Creosoted Wood
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Carnegie Steel Co.
Foundation Co.
Lackawanna Steel Co.

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Lynchburg Foundry Co.
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Pipe, Lock Joint
Lock Joint Pipe Co.

Pipe, Reinforced Concrete
Lock Joint Pipe Co.

Pipe, Riveted Steel
American Spiral Pipe Wks.
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East Jersey Pipe Co.
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Machold & Riddell
Petroleum Iron Works Co.
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Abendroth & Root Mfg. Co.
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Morris Machine Works
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Cameron Steam Pump Wks., A. S.
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Edson Manufacturing Co.
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Pulsometer Steam Pump Co.
Schramm and Son, Inc., Chris D.
Van Nouhuys Mach. Wks.
Waldo Bros. & Bond Co.

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Cameron Steam Pump Wks., A. S.
Cook, A. D.
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Hinman & Co., D. A.
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Cook, A. D.
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(See Concrete Reinforcement)

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(See Steel Plate Construction)

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Pacific Tank & Pipe Co.
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"A great many engineers are unconsciously holding themselves in check because they fail to grasp business principles."

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WHAT Mr. Harrington and other engineering authorities are saying about the importance of business training for technical men, the Alexander Hamilton Institute began emphasizing years ago.

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No man could run thru the letters

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And another from a resident engineer, of a giant engineering company: "*The engineering profession is broadening, and men trained as engineers are more and more being used in business where their technical education gives them an excellent groundwork.*"

"*Your training enabled me to effect economies in my work which I had not dreamed of before,*" says a prominent electrical engineer. And other men, in every phase of technical work, are on record with equal positiveness and enthusiasm.

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Towers, Transmission
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Valves Return
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Westinghouse Traction Brake Co.

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Coffin Valve Co.

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Dobbie Fdry. & Mach. Co.
Flory Mfg. Co., S.
Lambert Hoisting Engine Co.
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Northeastern Co.
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Protexol Corp.
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Lowell Wrench Co.

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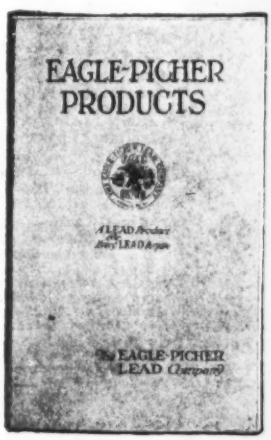

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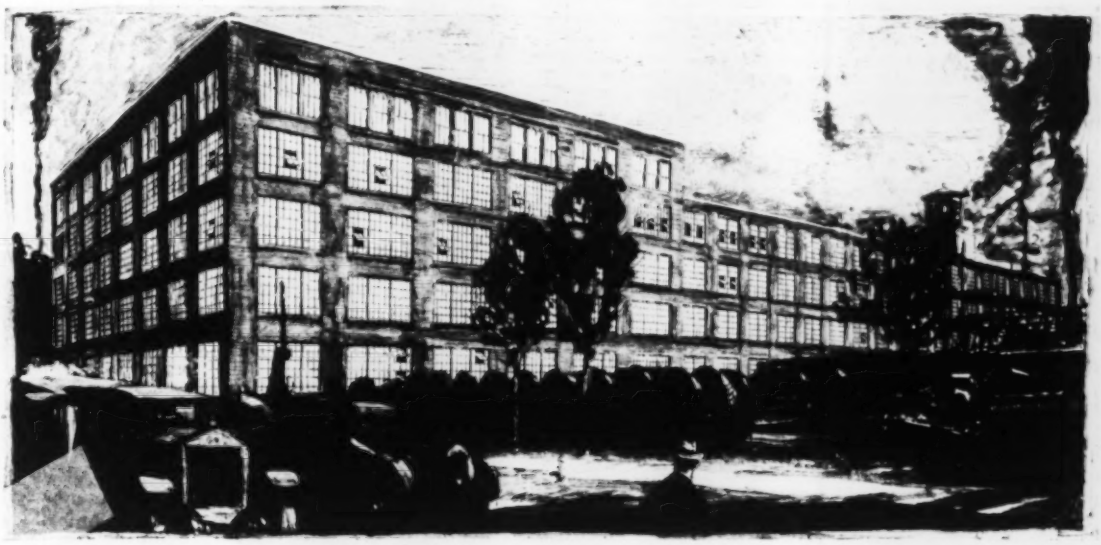

This modern new factory of the Ohio Body and Blower Co. of Cleveland, Ohio, is an example of the multiplied thousands of America's first industrial buildings in which workmen produce more and better in daylight through Fenestra WindoWalls

Osborne Engineering Co., Architects
The Sam W. Emerson Co., Contractors

WindoWalls—In Ohio Company's Building—Are Standard Types

THE WindoWall idea, that of securing the largest area of window space possible, is the predominating feature of construction in the Ohio Body and Blower Company's plant, at Cleveland, Ohio.

23,271 square feet of Fenestra Steel Sash was used in the erection of this building. Standard types and sizes were used exclusively.

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In both small and large buildings, standard types of Fenestra Steel Sash should be used wherever possible. Standard types can be delivered sooner, and cost less, than special sizes.

Following is an abbreviated representative list of buildings now under construction, in which Fenestra WindoWalls are specified:

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Thompson-Starrett Co., Contractors
Albert Kahn, Architect

Cadillac Motor Car Co., Detroit, Mich.
Du Pont Engineering Co., Contractors and Architects

Gilbert & Barker Mfg. Co., Springfield, Massachusetts
McClintock & Craig, Architects
Tucker & Lewis, Contractors

Studebaker Corp., South Bend, Ind.
James Stewart & Co., Inc., Contractors

The California & Hawaiian Sugar Refining Co., San Francisco, Cal.
A. A. Brown, Engineer

The Goodyear Tire & Rubber Co., Los Angeles, Cal.
The Hunkin-Conkey Construction Co. Contractors

The American Chicle Co., Long Island, New York
Ballinger & Perrot, Architects
The Turner Construction Co., Contractors

The Hart, Schaffner & Marx Co., Chicago
The Walter Company, Architects and Contractors

Detroit Steel Products Company
2055 East Grand Boulevard, Detroit, Mich.
Canadian Metal Window & Steel Products Limited, Toronto, Canada

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STEEL WINDOWALLS

Everett Avenue, Winchester, Mass., built with "Tarvia-X" in 1915. The avenue is a clean, durable, easy-traction roadway maintained at a minimum expense.

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Preserves Roads Prevents Dust—

Sheffield Road, Winchester, Mass., a macadam road kept in perfect condition by an occasional treatment with "Tarvia-B."

Tarvia Roads cost *less* than untreated roads—

"OUR uniformly clean streets are the pride of the town and *Tarvia is responsible for this condition.*"

So writes Mr. T. Parker Clarke, Superintendent of Highways, Winchester, (Mass.), who has been using Tarvia extensively ever since 1908, both for gravel and waterbound macadam roads and streets.

The saving in maintenance has been so considerable since the use of Tarvia that instead of spending all his appropriation on the streets in the central part of the town, he is able to take care also of *many outlying districts which formerly were entirely neglected.*

This is another striking proof of the fact that it is actually cheaper to treat your roads and streets with Tarvia than to leave them untreated.

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Tarvia is a coal-tar preparation, low in cost and easily applied, which renders your roads dustless, mudless, frost-proof and automobile-proof. Tarviated roads are the one economical solution of the problem of high-grade low-cost roads for cities, towns and country districts.

Special Service Department

This company has a corps of trained engineers and chemists who have given years of study to modern road problems. The advice of these men may be had for the asking by any one interested. If you will write to the nearest office regarding road problems and conditions in your vicinity, the matter will be given prompt attention.

Illustrated booklet telling about the various Tarvia treatments, free on request.

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